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TRANSACTIONS

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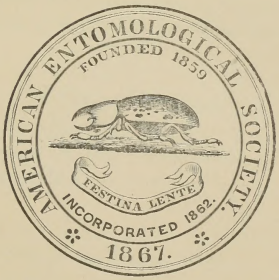
VOL. IV.



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TRANSACTIONS

OF THE

AMERICAN ENTOMOLOGICAL SOCIETY.

VOLUME IV.

On the North American Species of CATOCALA.

BY AUG. R. GROTE.

The present paper is a mere outline of one in which all the North American species, known to me belonging to the genus Catocala, were fully and comparatively described, and of which paper I have been so unfortunate as to lose the manuscript in transportation. The material on which my MS. was based is now in part inaccessible to me, having been returned to various collections. I remember to have pointed out in my lost MSS., that, although well represented in both Europe and Asia, the genus seemed to have its largest representation in North America and to attain with us its fullest developement. Here we have a number of species in which the hind wings are wholly black above, such as C. epione, C. viduata, C. tristis; species which have no described analogues in other countries. Again, we have a little Group (Corisce, *Hübner*) comprising species without the usual black median band on the hind wings above; little species with yellow secondaries and peculiar in appearance, but which seem to offer no structural characters on which to separate them generically. Geographically considered the genus belongs to the Northern Hemisphere.

I treated at some length the structure of the genus and dwelt on the ornamentation. It suffices me now to point out that while the primaries above offer the normal lines and enclosed spots common to the Noctuidæ, that the median space shows in addition a ringed spot, the subreniform, beneath the reniform spot. I have found by the study of such species as C. piatrix, that this spot is in reality a part of the transverse posterior line which is here inwardly inflected. And although the subreniform is more frequently a perfectly isolated and independent annulus, when also the t. p. line is continuous and unin-

flected, still it is in C. piatrix, C. insolabilis, etc., usually open and thrown outside of the t. p. line into the subterminal space. I have not met the subreniform spot of Catocala in other genera of the family, so that this explanation of its origin seemed interesting to me. I followed a grouping of the species according to the color and appearance of the secondaries for convenience of reference, and indeed in the majority of cases this arrangement seemed natural. The little C. tristis, however, appeared more properly associated with the slenderer yellow winged species, than with the heavier insects of its group.

I arranged the North American Catocalæ as follows:

Secondaries black and unbanded above	Species	1— 8.
Secondaries black above with a white band	"	— 9.
Secondaries various shades of red above with black median band	"	10—23.
Secondaries orange above with a black median band	"	—24.
Secondaries black above with a narrow median yellow band	"	—25.
Secondaries yellow above with a median black band	"	26—51.
Secondaries yellow above without a median band	"	52—54.

1. **Catocala epione,** *Westwood.*

Noctua epione, Drury.

♂ ♀.—A species of medium size and readily recognisable by the broad black transverse lines of the primaries above. The subreniform is moderate, irregularly pyriform, pale. The reniform is large, rather vague, with a brown annulus and stain. The t. p. line has a moderate single acute tooth opposite the cell and is followed by a distinct brown shade band, and this again by a pale shade following the serratures of the subterminal line. Hind wings deep black above, with long pure white fringes and fuscous hair at base and along internal margin. Beneath, the wings are almost wholly blackish with an iridescent tinge; hind wings with a hardly perceptible trace of the usual bands. Primaries with a narrow whitish subterminal band becoming obsolete before internal margin, and a broader internal and shorter band discontinued below vein 2.

I have seen many specimens from the Middle and Southern States. From Abbot's figures Guenée described the larva found on oak. The imago is quickly distinguished by the broad and comparatively even lines of the primaries above; occasionally the t. p. line is connected with the subreniform.

2. **Catocala lachrymosa,** *Guenée.*—

Described comparatively with C. epione, this is a species I have never been able to identify. We are led to look for a near ally of C. epione with, apparently, the same facies. It should be recognisable from the unusual character afforded by the subterminal line which is stated to be distinct and very black.

3. **Catocala insolabilis,** *Guenée.*

♂ ♀.—The primaries are frosted with glaucous white or ashen scales. The lines are narrow, indistinct and the t. p. line, with two not very acute subequal teeth opposite the cell, sweeps inwardly and includes the subreniform. Usually the internal margin is suffused with black, obscuring the lines inferiorly, but not always. Reniform moderate, vaguely ringed, with a white external and small brown ovate internal annulus. Secondaries wholly black above, with black fringes. Beneath body and base of both wings white. Narrow and faint white external bands on both wings.

This is the first of a number of closely allied species of which the stoutest is Guenée's C. viduata, than which this is much slighter. We must look for the dusky primaries and powdery squamation with its bluish tinge, and the ovate narrow internal brown annulus of the reniform as ready distinguishing characters. I have a specimen with unicolorous griseous smooth primaries, secondaries with whitish fringes, which I think is a variety; more material may, however, show that we have to do with a distinct species.

4. **Catocala viduata,** *Guenée.*

Catocala vidua, Guenée, p. 94.

♂ ♀.—Robust; altogether the stoutest bodied species of the genus. Wings dentate. Primaries with the cinereous colors underlaid with pale brown; on the nervures powdery glaucous scales. The reniform is large, vague and spherical. A very prominent black shade sweeps downwardly and outwardly from costa above the reniform and runs to external margin which it joins below the apices. This black shade, which is the median shade, is present in the following and may be traced in other species, but is nowhere as determinate as in C. viduata. The t. p. line is followed by the broad pale brown subterminal space, which is edged again outwardly by the diffuse white border of the obsolete subterminal line. Unusually long thick and pale hairs at the base and along internal margin of the black white fringed secondaries. Centrally the fringes are interrupted with black. Beneath the body is dirty whitish; wings white at base; bands tolerably distinct. Exp. 90 to 95 mm. Length of body 38 to 40 mm.

For this species I have taken the name proposed by Guenée in the appendix to his work. I do not believe this to be Abbot's species, whose figure rather resembles C. desperata. But, under all the circumstances, it does not seem worth while to adopt Smith's specific name.

Louisiana, Virginia, Pennsylvania. Rare.

5. **Catocala desperata,** *Guenée.*

? Phalaena vidua, Abbot & Smith.

♂ ♀.—Well sized, clear grey, white and black. All the lines distinct and colors bright. A basal longitudinal dash; another crossing the outwardly broadly marked geminate transverse anterior line. Reniform with double annulus, whitish, well sized; subreniform white, included by the t. p. line. Median shade fainter than in C. viduata; subterminal line tolerably distinct, preceded

by a white shade; subterminal space dull brown, not as in C. viduata and the preceding species bright brown. Fringes of secondaries pure white. Thorax bright grey with the black markings distinct. Expanse 80 to 85 mm.

Common throughout the Middle and Southern States in various localities.

6. **Catocala retecta.** *Grote.*

♂ ♀.—This species closely resembles C. desperata, but it is smaller. The diffuse black median shade is wanting. The black longitudinal dashes at base, across the t. a. line, and across the t. p. line on sub-median interspace, are very distinct and the two subequal teeth of the transverse posterior line are, as usual, shaded with black. Beneath much as in C. desperata. Expanse 70 mm. Length of body 30 mm.

A few specimens examined from the Middle States.

7. **Catocala flebilis,** *Grote.*

♂ ♀.—Peculiarly pearly cinereous, quite unlike in tint of primaries to any of its allies, than which it is smaller. The black longitudinal dashes of C. desperata and C. retecta, are less prominent. Transverse lines not geminate, fine, distinct but fading towards internal margin. Reniform vague, with a narrow outer whitish ring and nearly filled with a pale brown center; subreniform entirely open, concolorous, slightly touched with blackish from the diffuse shadings crossing the t. a. line. Subterminal line very indistinct. The usual black shading running upwardly from the teeth of t. p. line to external margin. Hind wings very black with white fringes. Beneath body and base of wings white. Differs by the narrowness of the white space between the central black fascia and the broad border on hind wings. Primaries have a whitish blotch on cell and external white facia nearly obsolete. Expanse 66 to 69 mm.

Several specimens examined from Pennsylvania.

8. **Catocala tristis,** *Edwards.*

♂ ♀.—I have seen but two specimens of this pretty little species from New York and Pennsylvania. It is readily recognisable from the secondaries being unbanded beneath. It is the smallest known species with black secondaries, and resembles rather C. gracilis or even C. androphila, than the species with which I here associate it from the color of its secondaries. My detailed description is lost with my original MS. and I have returned my material.

9. **Catocala relicta,** *Walker.*

♂ ♀.—This is the North American representative of the European Catocala fraxini. In the male the primaries above are nearly entirely white and the blackish powdery ornamentation is subobsolete. The female is darker and has the lines of the primaries evident. The narrow central fascia of the secondaries is pure white. It cannot be mistaken for its European ally, than which it is a little smaller and Guenée,

who says: "je l'ai reeue également de l'Amerique Septentrionale, ou elle ne différe en rien de nos individus europeéens", in speaking of C. fraxini, must have erred in his locality, for C. fraxini does not occur in North America. Expanse 74 to 77 mm.

More commonly taken in Canada and the Eastern States, C. relicta is rare in Pennsylvania and I have seen no specimens from the South.

10. **Catocala californica,** *Edwards.*

♀.—This species resembles the European C. elocata, and is another instance of the affinity existing between the Californian and European faunæ. Our species from the eastern slope which resemble C. californica, C. elocata and C. nupta, with powdery grey ornamentation of primaries and straighter lines, differ by the more oblique external margin and produced apices. C. californica has the secondaries dark rose red. The median black fascia is not constricted but terminates rather abruptly much before the margin. Expanse 58 mm.

11. **Catocala briseis,** *Edwards.*

♀.—I have seen a single specimen of this species which is recognisable from the unusually dark primaries relieved by the white dentate shadings of the subterminal line. It is stouter than C. californica but a smaller species than C. unijuga. My detailed description is lost and I have no longer the specimen in my keeping. New York State.

12. **Catocala unijuga,** *Walker.*

♂ ♀.—A fine large species with dark powdery grey primaries. Transverse anterior line indistinctly geminate with an evident internal white shade. Disc before the ordinary spots pale and the subreniform is paler than the large concolorous bisannulate reniform. T. p. line without very prominent teeth but broadly marked and inflected on s. m. interspace. Subterminal line distinct and evenly dentate, preceded by a distinct white coincident shade. Wings strongly dentate. Secondaries bright red. Median band not constricted medially, tapering obsoletely towards internal margin which it nearly attains. Beneath the band terminates abruptly long before the margin. Expanse 72 to 80 mm.

Not uncommon in Canada and the Eastern and Western States.

13. **Catocala junctura,** *Walker.*

I have seen the specimen in the British Museum described by Mr. Walker. It seemed to me to differ principally from C. unijuga by the more attenuate median band of the secondaries. I have a specimen before me, which I doubtfully refer to this species, received some time ago from R. Stratton as collected in Maryland and which differs from C. unijuga in the less distinct subterminal line and obsolete white shad-

ing of the primaries, while the median band of the hind wings is medially greatly constricted and abruptly discontinued before internal margin.

14. **Catocala Walshii.** *Edwards.*—

This species is unknown to me.

15. **Catocala parta.** *Guenée.*

♂ ♀.—Wings dentate, squamation smooth. Primaries dull cinereous, with a slight yellowish cast. Transverse lines fine, obsoletely geminate. Reniform, preceded by a distinct whitish shade on the cell, with its external annulus dentate outwardly. Subreniform large, pale, subquadrate. The subapical streak, from the t. p. line to extreme margin, is broad distinct and black. Subterminal line distinct, regularly dentate, preceded by a narrow coincident white shade; subterminal space with a pale brownish tint. Hind wings dull red with an even black median band nowhere constricted and terminating much before internal margin. Beneath, the band is quite irregular and the wing is stained with red inferiorly. Expanse 72 to 74 mm.

The larva of this species feeds on different species of Willow (especially S. Babylonica) and the imago is very common in July in the suburbs of Brooklyn, L. I.

My material has come to me from Massachusetts, New York and Pennsylvania. The determinations of this species and C. amatrix in the British Museum Collection and Lists are erroneous.

16. **Catocala coccinata,** *Grote.*

♂ ♀.—A little smaller than C. parta, which this species resembles in the appearance of the primaries. Clear cinereous; before the reniform, which is smaller and paler than in C. parta, the wing is whitish and occasionally allows the crimson underface to be reflected. Subreniform whitish and large. T. p. line more outwardly projected than in C. parta; below the two prominent teeth the line retreats inwardly more evenly and deeply and here the subterminal space is whitish. The inward inflection above vein 1, is deeper than usual and nearly reaches the t. a. line, constricting the median space thereby and offering a quick character on inspection. Secondaries bright crimson. Median band even and continued. Beneath the fore wings are stained with crimson to the median black band and on the secondaries below the median vein. Expanse 64 mm.

My specimens are from Pennsylvania. C. coccinata resembles C. parta, while a slenderer species, in appearance of the primaries, while the secondaries are as brilliantly colored as those of C. cara.

17. **Catocala ultronia,** *Hübner* sp.

♂ ♀.—This species I have taken in May in Alabama and it is commonly found throughout the Middle and Eastern States. It is so well known that I may be spared any description here. An excellent illustration of it is given by Dr. Packard in his Guide to the Study of Insects.

18. **Catocala amatrix,** *Hübner* sp.

Catocala selecta, Walker.=var. *Catocala nurus,* Walker.

♂ ♀.—A fine large species with soft brown primaries, the lines and spots indistinct. Sometimes the wing is suffused longitudinally with blackish from the base outwardly; this is Mr. Walker's *C. nurus.* Secondaries bright rose pink; the median black band broad and even, terminated before the internal margin. Expanse 74 to 86 mm.

Of common occurrence in various localities throughout the Eastern and Middle States.

19. **Catocala cara,** *Guenée.*

♂ ♀.—Primaries deep blackish-brown above. The lines narrow, velvety black, better marked superiorly, tending to become obliterate towards internal margin. Ornamentation much as in C. amatrix; the lines and veins are shaded and marked with olivaceous scales. Hind wings deep intense rose red with an unusually broad and even black median band continued to internal margin. Basal hairs black. Expanse 85 to 90 mm.

A still more beautiful species than C. amatrix, to which it is allied, but C. cara is stouter and more brilliantly colored than its ally.

In the same localities with foregoing and occuring as frequently. Also from Southern States.

20. **Catocala concumbens,** *Walker.*

♂ ♀.—Also allied to C. amatrix but a much smaller species. Primaries pale brownish evenly frosted over with whitish scales. Collar soft brown, discolorous with the cinereous thorax. Ordinary lines black, narrow and distinct Reniform vague, whitish, with a dark internal annulus. Subreniform open. Secondaries bright pink with a broad abbreviate median black band; fringes white. Beneath, the band is narrower and more irregular. Average expanse 68 mm.

More common Northward; my specimens are from Canada and the Eastern States. Abundant in some localities. The larva has been described by Mr. Wm. Saunders.

21. **Catocala marmorata,** *Edwards.*

I have seen the type of this large species which I regard as allied to C. ilia. My detailed description is now lost and I forwarded the specimen to New York to be figured, so it is now inaccessible to me. The species is from Yreka, California.

With regard to the specific name this is already used in the Noctuidæ for a species of Hadena. It has been hitherto the custom to reject such names, but this should not be done where, as in the present case, there is no danger of confusion.

22. **Catocala ilia,** *Cramer* sp.

♂ ♀.—Primaries dark cinereous, powdered with glaucous scales and shaded with black. A basal ray. T. a. line geminate. Reniform whitish with a small black internal ring. Subreniform pale, subquadrate, connected usually with the t. p. line. Beyond the spots the median space is shaded with black. Sometimes the whole wing is shaded with blackish to t. p. line, leaving the reniform as a large white blotch without the annulus. Again the wing wants the glaucous scales and the reniform is concolorous, or merely shows a few white scales. Secondaries orange red with an irregular black median band tapering to the margin. Basal hairs fuscous. Average expanse 75 mm.

An exceedingly common and very variable species, found in Maryland and Virginia.

23. **Catocala uxor,** *Guenée.*—

This species has not been recognised by me. I am disposed to regard some of the varieties of C. ilia as intended. The use of the specific name is objectionable.

24. **Catocala innubens,** *Guenée.*

♂ ♀.—A species of moderate size with rich brown primaries, powdered with glaucous scales. The lines are distinct, black and not very jagged. The subreniform is small, and pale and a ready character. The wings tend to be diffusely shaded with deep brownish from the base outwardly. Secondaries reddish-orange, with a broad tolerably even median band which tapers suddenly towards internal margin where it becomes lost in the long dull colored hairs which clothe the base and internal edge of the wing. Expanse 65 mm.

Not uncommon in the Middle and Western States.

This species must not be confounded with C. muliercula, *Guenée,* which I refer to the following section from the color of its hind wings, and which wants the whitish serrulate shading before the subterminal line characteristic of C. innubens. I now consider as a well marked variety merely of C. innubens :

a. **Catocala scintillans,** *G. & R.*

Both sexes of this form have occured rarely. The primaries above are intensely and entirely blackish brown to the transverse posterior line, and this portion of the wing is overlaid by bronze or glaucous metallic scales arranged in fine wrinkled lines which in certain lights are brilliant. I was first led to associate C. scintillans with C. innubens, by seeing an analogous variation in C. ilia, and on detecting the glaucous scales of C. innubens to be brilliant in certain lights, Certainly the two look very distinct, but there seem no other palpable differences, while the paler apices and terminal space and whitish subterminal line of C. innubens are well expressed in C. scintillans. Besides, a specimen of C. scintillans, in Mr. Edwards' Collection, shows the t. a. line and the subreniform spot of C. innubens plainly.

25. **Catocala cerogama,** *Guenée.*

♂ ♀.—A rather large species with the body parts proportionally slender. Forewings pale wood brown, frosted with white scales and shaded with bright brown and whitish. T. a. line geminate, strongly marked outwardly to sub-median interspace, to below the white and prominent sub-reniform. A broad whitish shade extends downwardly and outwardly obliquely from costa over the diffuse pale brownish reniform spot, bringing the strongly marked t. a. line, which it margins inwardly, into relief superiorly. T. p. line black and distinct to 2d nervule, accompanied by bright brownish shades; the brown bright color obtains between the t. p. line and the whitish bordering of the dentate sub-terminal line. The veins tend to being marked by dark scales. Hind wings black with an even narrow median yellow band. Base clothed with long pale fuscous hairs, beneath which the yellow scales that clothe the wing may be detected. Thus, in reality, the hind wings do not differ from those of the succeeding group in pattern. Beneath, with primaries, they are pale yellow, crossed by a broad median and marginal black band, the latter retired from the edge of the wing. Expanse 75 to 85 mm.

Not common. Eastern, Middle and Western States.

26. **Catocala neogama,** *Guenée.*

♂ ♀.—A stout bodied species of strong habit. Primaries above cinereous, varying in depth of shade. Basal half line black, distinct, and there is a basal ray, usually evident, accompanied by a brown shade. T. a. line better defined superiorly and outwardly and, with the t. p. line, accompanied usually by bright brown shadings. Reniform tolerably large and distinct, with an interior shaded brown annulus; the disconnected subreniform is pale and moderate though well defined. T. p. line single with two strong subequal teeth and a strongly marked inflection on s. m. interspace. Subterminal interspace usually bright brown. S. t. line inconspicuous; the usual sub-apical dark shade or streak. Hind wings dark yellow with an irregular median band, tapering, but continued beneath the longer dark fuscous hair to internal margin, constricted superiorly. Basal hairs dark. Beneath all the black bands very attenuate. Expanse 80 to 82 mm.

Eastern and Middle States; very common.

I do not believe this to be the *Phalaena neogama* of Smith. In the Berlin Museum I have named this species *Catocala communis*, while two specimens from Texas therein contained differed from the present by their brighter colored secondaries, and otherwise more nearly resembled Abbot's figure. I determined these two latter specimens as C. neogama, *Smith* sp. I have no further material from the South at the moment before me, but believe my determinations in 1867 will be justified by future discoveries.

27. **Catocala subnata,** *Grote.*

Catocala subnata, Grote, Proc. Ent. Soc. Phil. p. 327 (1864).

♂ ♀.—Anterior wings pale grey with a greenish or bluish tinge. All the lines are narrow, better defined superiorly, not very distinct. Reniform smaller, less prominent than in C. neogama, *Guenée,* which this species closely

resembles. Sub-reniform large, open, formed by a deep sinus of the t. p. line. Hind wings bright yellow; hairs at the base and along internal margin more yellow, less obscurely colored than in C. neogama. Median band as in C. neogama, but less irregularly edged. Thorax pure grey; body parts paler than in C. neogama. Expanse 80 to 90 mm.

Middle States. Rare. "Kanawha, 1867" ♀ Edwards' Collection.

Differs from C. neogama, *Guenée*, by its slender body parts and greater expanse. At first sight it resembles it closely, but the large open sub-reniform, the paler hind wings, and the more acutely dentate t. p. line are distinguishing characters.

28. **Catocala piatrix.** *Grote.*

Catocala piatrix, Grote, Proc. Ent. Soc. Phil. Vol. 3, p. 532 (1864).

♂ ♀.—A well sized species with slenderer body parts than C. neogama, but stouter than the succeeding species, C. palaeogama, with which Mr. Walker has confounded it. Very distinct in color and appearance from its allies. Anterior wings dark wood brown, or blackish brown, slightly silky, darker shaded in the sub-basal space, on the costa above the discal cell, and obliquely subapically on the terminal space. When fresh with powdery greenish scales along the veins. Lines black. Basal half-line with a single tooth, terminating with an outward inclination. T. a. line geminate, with the outer line sometimes less distinct, with an obsolete sub-costal tooth, irregularly undulate, divaricate. A paler costal shade spreads obliquely from costa over the subreniform. Reniform shaded with black, thrice excavated exteriorly, followed by a blackish shade. Subreniform usually closed but connected with the t. p. line, occasionally open, always paler and well defined. T. p. line black, distinct, without dilations, a prominent sinus on s. m. interspace; discal teeth sub-equal and prominent. Subterminal line geminate, with a greyish center. Hind wings deep yellow, internal margin and base clothed with long dark brownish hair. Median band broad, not much constricted, tapering suddenly to internal margin. Thorax concolorous with primaries; tegulæ bordered with black lines; prothorax with a black line. Expanse 78 to 84 mm.

Not rare throughout the Atlantic District. I have a specimen from Southern Alabama.

29. **Catocala palaeogama.** *Guenée.*

Catocala palaeogama, Grote, Proc. Ent. Soc. Phil. Vol. 3, Plate 3, fig. 2 (1864).

♂ ♀.—Anterior wings grey, powdered with greenish grey and black scales and shaded with blackish, and with bright brown on the subterminal space. Ordinary lines black, rather broad and distinct. Reniform moderate, rounded, indistinct, with a brownish center, sometimes entirely black. Sub-reniform pale, small, independent or rarely connected with t. p. line. Sinus of t. p. line on submedian space broadly marked, acute, not deep. Hind wings dark yellow. Median band narrow, much constricted, tapering wavedly to internal margin. Expanse 72 to 75 mm.

Less common than the preceding species. Eastern and Middle States.

A well marked variety of this species is:

a. **Catocala phalanga,** *Grote.*

♂ ♀.—Primaries paler than in type, pale greenish grey, whitish before the reniform on median space. Base of the wing suffused with black and the narrow subterminal space entirely black between the t. p. and the white marked sub-terminal line. Reniform variable as in the type.

30. **Catocala habilis,** *Grote.*

♂ ♀.—Smaller and slighter than C. palaeogama, of the same general habit, with paler more evenly colored primaries. Fore wings pale grey with a greenish tint. All the lines black, narrow, often indistinct. Basal half-line and t. a. line as in C. palaeogama. T p. line with less prominent teeth, and differing by being connected with and encircling the inconspicuous sub-reniform, which is usually open, a little paler than the ground color of the wing, moderate, subpyriform, excavated outwardly. The sub-median sinus is prominent and more broadly marked; the t. p. line followed by a faint whitish shade. The s. t. space is inconspicuously brownish; s. t. line faint, preceded by a whitish shade much as in C. palaeogama. Terminal interspaceal points evident. Secondaries dark yellow, a little paler than C. palaeogama; bands similar, the median a little broader, the marginal proportionally a little narrower than in C. palaeogama. Thorax pale grey, concolorous with primaries; thoracic lines sub-obsolete. Expanse 60 to 65 mm.

A number of coincident specimens examined from Pennsylvania.

31. **Catocala consors,** *Guenée.*

Phalaena consors, Smith.

♂ ♀.—A species of moderate size, a little stouter than C. habilis; the ornamentation of the primaries recalling C. epione. Forewings dark ashen, pulverulent, concolorous. Lines black and usually broad and evident. T. a. line outwardly oblique, waved, without costal tooth. Reniform large, with a narrow internal brown annulus, excavated externally. Subreniform small, nearly fused with reniform, pyriform, whitish or pale, evident. T. p. line, with a single not very prominent tooth opposite the cell, below which it is very moderately waved or dentated; submedian sinus moderate. Beyond it the s. t. is obscure brown, and then a broad greyish shade precedes the inconspicuous subterminal line. Hind wings bright deep yellow; median band twice constricted, flexuous; deep corresponding excavations are formed in the external band, while the yellow interspace between the bands is narrower than usual. Beneath the purplish-brown terminal shades are very broad on both wings. Expanse 60 to 63 mm.

Georgia. (Ridings.)

32. **Catocala ponderosa,** *G. & R.*

Catocala ponderosa, G. & R. Proc. Ent. Soc. Phil. Vol. 6, Plate 4, fig. 2. (1866).
Catocala nebulosa, Edwards.

♂ ♀.—A fine stout bodied species with somewhat of the habitus of C. neogama. Anterior wings greyish cream color, variable in depth of tint, much shaded with deep brown, transvere lines black. Basal space to t. a. line entirely suffused superiorly with blackish-brown. Median space usually pale or quite light, when it contrasts with basal and terminal coloration quite strongly. Reniform bisannulate, obliterate, concolorous. Subreniform small, entirely enclosed but connected with the t. p. line, distinctly margined, concolorous. T. p. line black, distinctly defined, slightly dilated before internal margin and

again immediately on costa, irregular, with two prominent teeth the lower of which is about a third shorter than the upper. Terminal space, with a purplish shade, brown, centrally shaded with paler scales. Posterior wings dark or deep yellow; the median band much as in C. neogama, but slightly broader, narrowing the basal yellow space which is more or less concealed by the longer hair-like basal scales. Head and thorax brown, tegulæ with narrow marginal lines. Abdomen dust color, tufted on the basal segments. Expanse 70 to 75 mm.

Middle and Western States; not common.

Resembles C. muliercula, in color as much as any species, but larger, and little slenderer than C. neogama. The faint purple lustre of the primaries reminds one of Erebus, Letis and allied genera.

Mr. Edwards compares the secondaries quite wrongly with those of C. cerogama, which C. ponderosa in no wise resembles. The specific name chosen by Mr. Edwards had already been used five times in the family.

33. **Catocala muliercula.** *Guenée.*

♂ ♀.—Primaries deep brown, shaded with bluish over the paler median space. Lines black; t. a. arcuate, once waved on internal nervure; t. p. line with two equal projected teeth opposite the cell, below which it runs obliquely inwardly downward, slightly dentate, projected outwardly again before the slight sinus or internal nervure. A pale shade before the moderate reniform; subreniform quite small, very pale, evident, tending to be joined to the t. p. line. Hind wings bright deep yellow; basal hairs blackish; median band broad, continued, not constricted; marginal band broad, its inner edge twice lightly excavated, the lower notch the deepest. Abdomen basally tufted, dark above; thorax concolorous with primaries. Expanse 58 to 60 mm.

Middle and Western States. Rare.

Smaller than C. innubens, which has paler brown primaries powdered with grey, and orange secondaries.

34. **Catocala badia.** *G. & R.*

Catocala badia, G. & R. Proc. Ent. Soc. Phil. Vol. 6. Plate 4, fig. 1 (1866).

♂ ♀.—A moderate sized species of very distinctive appearance, reminding one a little of Ophiusa. Legs long, strongly spurred. Primaries pale chestnut brown with two transverse dark brown broad shades obscuring the ordinary lines. The first within the arcuate t. a. line, the second over and without the angulated t. p. line and neatly defined outwardly. The reniform is obscured. The t. p. line may be discerned with difficulty; it has a single tooth opposite the single more or less marked angulation of the outer edge of the dark shade: it runs deeply inwardly below the reniform, forming the open subreniform, and here greatly constricting the median space; below this it is a little irregular, forming an impromінent dentation on vein 1. Hind wings light bright yellow; median band not constricted, tapering towards internal margin before it expires; marginal band narrow with irregular or crenulated inner edge; fringes blackish. Expanse 58 mm.

Middle and Eastern States. Not rare; occurred frequently at Seekonk, Rhode Island.

35. **Catocala antinympha,** *Hübner* sp.

Catocala melanympha, Guenée.

♂ ♀.—Smaller and slighter than C. muliercula. Primaries dead black, with velvety black lines defined by very narrow pale shades. Reniform with pale center and internal annulus. The brown color of the subterminal space fills in the large and open subreniform, within which the pale external edging of the t. p. line becomes more evident. The pale grey serrated shade before the s. t. line is tolerably distinct, as are the interspaceal terminal double, black and pale points. Hind wings light bright yellow with black basal hairs and an even well continued median band. Fringes black, whitish at apex. Expanse 54 mm.

Middle and Eastern States. Rare.

36. **Catocala serena,** *Edwards.*

♂ ♀.—Dusky ashen. Head, collar and costæ of primaries, more or less suffused or shaded with a darker blackish ashen tint. Lines fine. T. a. with a fine costal tooth, thence slightly waved to internal margin. T. p. line finely dentate, with a single slightly projected tooth opposite the cell. Reniform small, inconspicuous, single. Subreniform open, pale, formed by a deep sinus of t. p. line, which runs again deeply inwardly at internal vein. The pale serrated subterminal shade is evident, preceded and followed by dark shades. Hind wings rather light yellow, with a narrow angulated continued black median band tapering to internal margin. Basal hairs dusky. Marginal band broad, its inner edge even, angulated or elbowed. Beneath the bands are broad, leaving narrow yellow interspaces; body dark. Expanse 58 to 60 mm.

Several specimens from Pennsylvania examined. My good friend Mr. Sanborn has sent me a specimen from Massachusetts.

37. **Catocala illecta,** *Walker.*

♂.—A broad winged, moderately stout species, recalling C. concumbens in appearance and color of primaries. Forewings and thorax pale grey, lightly shaded, evenly colored; collar marked with brown linear shades. Lines fine and black. Reniform small. T. p. line acutely dentate, with a single strongly projected tooth opposite the cell (the usual lower tooth reduced), the moderate subreniform open, formed by a deep sinus of the t. p. line which is again rather deeply inflected on the internal nervure. Subterminal shadings very inconspicuous. Hind wings bright golden yellow without darker basal hairs. Median band proportionally narrow, once constricted, even, squarely and abruptly terminated much before the margin. Terminal band narrow forming a disconnected spot at the angle; fringes whitish. Abdomen yellow. Beneath, body and wings grey. Disc yellow; bands narrow; on secondaries median band discontinued superiorly, forming a discal lunule on the cell. Expanse 75 mm.

A single specimen without locality in Mr. Edwards' Collection.

38. **Catocala Clintonii,** *Grote.*

Catocala Clintonii, Grote, Proc. Ent. Soc. Phil. 3, p. 89. Pl. 3, fig. 4 ♀, (1864).

I have fully illustrated this species, of which I have seen but few specimens from New York and Massachusetts, as above cited. It is rare in Collections and I have not yet seen the male.

39. **Catocala nuptialis.** *Walker.*

Catocala nuptialis, Walk. C. B. M. XIII, p. 1206 (1857).

This species I have not identified. The description in the British Museum Lists agrees in some points with the succeeding, without coinciding.

"United States."

40. **Catocala abbreviatella.** *Grote.*

♂ ♀.—Primaries smooth pale grey, but little shaded, a little darker terminally. Basal half line fine. T. a. line black, very broad and distinct, straightly outwardly oblique to below median nervure opposite the subreniform, thence entirely lost and obliterate. Reniform moderate, annulate, with a black spot inferiorly. T. p. line faint, obliterate, plainest opposite the disc, without prominent teeth, encircling the open subreniform, the inner edge of which latter, approximate to the extremity of the black portion of the t. a. line and superiorly touching the lower part of the reniform, is alone marked and distinct. Subterminal shades vague; sub-terminal space faintly tinted with brown. Hind wings bright yellow. A rather narrowed, slightly constricted median black band expires much before the margin. Hind border not wide, interrupted and forming a prominent spot at anal angle. Beneath, the median band is aborted superiorly. Thorax pale grey, collar with a darker stain. Abdomen dust color, pale. Expanse 46 mm.

Two specimens from Texas (Belfrage).

Resembles no species known to me in the peculiar appearance of the ordinary lines of the primaries.

41. **Catocala frederici,** *Grote.*

♀.—Front, between the eyes, narrowly longitudinally dark brown. Terminal palpal joints dark brownish, mixed with grey on 2nd joint. Basal joint pale. Vertex, collar and thorax very pale testaceous greyish or whitish, without markings; collar faintly olivaceous. Abdomen clear bright yellow; beneath paler. Legs pale greyish, tarsi annulate with black. Anterior wings with obliterate markings, somewhat dark olivaceous, but overlaid everywhere with pale scales, through which the lines are faintly visible. All the lines are dull olivaceous blackish, most strongly marked on costa. Basal half line distinct. The t. a. line appears widely geminate, the outer component line broadly trigonately marked on costa. Median shade irregular, perpendicular. Ordinary spots obsolete. Reniform apparently large and circular, succeeded by an irregular darker shade. T. p. line even, regularly scolloped and brought into relief by a coincident narrow very pale shade. Subterminal line dark, evenly dentate, slightly projected opposite the disc. A distinct terminal series of interspaceal black points and short pale streaks. Fringes pale. Secondaries largely clear bright yellow. A narrow black median band tapering inferiorly and discontinued shortly beyond its inward projection, expiring much before internal margin. Terminal band narrow, especially at apex where it is even and leaves a broad yellow apical space below which it is externally evenly scolloped. It is discontinued abruptly at 2nd nervule. At vein 1 on the margin is a faint black spot. Beneath both wings are clear yellowish with narrow terminal and median bands. Expanse 57 mm. Length of body 28 mm.

Two specimens from Texas (Friedrich) examined in the Berlin Museum. Very distinct in appearance from any of its congeners.

42. **Catocala micronympha.** *Guenée.*

♂.—Anterior wings slightly dentate, costa arched to the apices which are produced, chestnut brown varied with whitish grey and blackish. The two median lines distinct but narrow, separated above but nearing below: t. p. line strongly projected opposite the cell where it is bidentate, the inferior tooth greatly reduced, afterwards uniformly waved, without a sinus on the sub-median nervure which is shaded with black along its entire length. Reniform replaced by a black streak. Median shade well defined, stopping at the cell and thence ascending towards the terminal margin where it touches with black two or three nervules. Subterminal line whitish, undulate or zigzag, nearly perpendicular, touching in passing the exerted tooth of the t. p. line. Hind wings ochrey yellow, with a broad arcuated hind border, as usual interrupted and forming a spot at anal angle; median band narrow, slightly angulated, with two streaks of blackish scales joining it from the base. Beneath, the median band is broader, especially at costa towards which it nearly spreads to base. Primaries beneath entirely yellow to the first black band.

I have not identified Guenée's description which I here translate.

Size and habit of the European C. protonympha, which it nearly resembles.

43. **Catocala polygama.** *Guenée.*

Differs from the European C. hymenea as follows:—♂.—The anterior wings are a little narrower, with the terminal margin more rounded, cinereous with a slight greenish tint, much more shaded and powdered with ferruginous, especially behind the t. p. line where this color brings into relief the dentate subterminal line. The ordinary lines are less clearly marked, their angles softened. The t. p. line is more lightly waved and, above the s. m. nervure, makes a profound sinus, broad, black and bordered with ferruginous. The median band of the hind wings more constricted on the cell, beyond more greatly arcuated or rounded and it is continued to the terminal margin. The hind broader is less largely intruded upon by yellow scales at the apex and the spot at anal angle is larger. The second joint of the palpi is notably securiform and the third slightly spatulate.

I translate Guenée's description. I have before me a number of specimens (Canada to Virginia) which differ in appearance among themselves but which I cannot separate into species, and which I refer to Guenée's C. polygama. The largest specimens are much shaded with whitish before the ordinary spots, while the median space behind is tinged with glaucous. The base of the fore wings is much shaded with deep brown, while the subterminal space is bright brown and usually strikes the eye. But again specimens are before me wanting all pale and bright brown colors, uniform dull brown and blackish and more like Guenée's indifferent figure. The expanse varies,

the Canadian specimens being smallest. The shade of the secondaries is not uniform. One specimen is remarkable for the encreased size of the subreniform and the deep orange yellow secondaries. One specimen is shaded with blackish along internal margin of primaries. The terminal band of secondaries is sometimes disconnected from the anal spot. These specimens vary from 38 to 50 mm. in expanse. But the course of the ordinary lines remains nearly the same, and I think we have to do with a single variable species. The lower discal tooth of the t. p. line is sometimes reduced and the lines are nearer together at internal margin in some specimens. The sinus of the t. p. line is always deep and marked.

44. **Catocala amasia,** *Guenée.*

Phalæna amasia, Smith (upper figure).

This pretty species is rare in Collections and I have no specimens before me at the moment. In the Berlin Museum is a specimen from Georgia (Sieber).

45. **Catocala formula,** *G. & R.*

Phalæna amasia, Smith (lower figure).

Catocala formula, G. & R. Proc. Ent. Soc. Phil. Vol. 6. Plate 4, fig. 5 (1866).

♂ ♀.—There is little doubt that this very distinctively marked species, which is fully illustrated as above cited, is intended by Abbot as the male of C. amasia, and figured on the same Plate in the Insects of Georgia. My specimens are from the Middle States, however, and I have seen none yet from the South.

46. **Catocala connubialis,** *Guenée.*

"48 mm.—Primaries a little produced at apices, pale ashen with the two median lines tolerably approximate; the t. p. line followed by a second, parallel, but less distinct. Reniform annulate, complete; beneath it a second spot also annulate, rounded and joined to the two lines by a blackish streak. Hind wings yellow with a narrow median band, joining near the middle of the wing a black streak from the base, and narrow marginal band interrupted and forming a spot at anal angle."

Guenée describes this species together with its larva, which eats the leaves of Cephalanthus occidentalis (button bush), from a drawing of Abbot's, without reference to which it will probably be difficult to identify the species.

47. **Catocala grynea,** *Cramer* sp.

Catocala nuptula, Walker.

♂ ♀.—Primaries pale dull glaucous grey, squamation smooth and close. All the lines faint and indicated by bright brown scales. Sinus of the t. p. line deep and marked, below this there is a prominent bright brown shade on the margin; ordinary lines propinquitous at internal margin. Costal brown marks evident. Ordinary spots vague, pale ringed. Hind wings deep yellow; median

band joins a blackish ray from base, but appears beyond as a black spot on the margin. Hind border constricted but not disconnected before anal angle. Expanse 40 to 50 mm.

Eastern, Middle and Southern States. Quite common and not at all variable except in size. Cramer's figure of this easily recognised species cannot, I think, be mistaken.

48. **Catocala praeclara,** *G. & R.*

Catocala praeclara, G. & R. Proc. Ent. Soc. Phil. Vol. 6. Plate 4, fig. 4 (1866).

♂ ♀.—Slighter than C. grynea which it imitates, but is quickly distinguished by the brilliant green reflection of the fore wings, the deep brown color of the subterminal space superiorly, which soils sub-apically the terminal space, and the pale yellow secondaries on which the hind border is disconnected. Expanse 40 to 44 mm.

Eastern and Middle States; less frequently occuring than C. grynea.

This species is fully illustrated as above cited. It does not vary and cannot be confounded with any other from the unusually strong gloss or sheen of the fore wings above.

49. **Catocala fratercula,** *G. & R.*

Catocala fratercula, G. & R. Proc. Ent. Soc. Phil. Vol. 6. Plate 4, fig. 3 (1866).

♂ ♀.—A moderate species, varying in the distinctness of the median black shade, which ascends as usual to external margin. The median space is sometimes shaded with whitish before the reniform. There is no sinus to the t. p. line. The shape of the median band varies in being more or less acutely produced opposite anal constriction of the hind border. The primaries above vary in depth of color. Expanse 42 to 46 mm.

Rhode Island to Virginia (Kanawha). Not common.

50. **Catocala minuta,** *Edwards.*

Catocala parvula, Edwards.

♂ ♀.—Smaller than the preceding species which it resembles in color. Primaries dull wood ashen with something of an ochraceous tint. T. p. line acutely dentate. Subterminal white serrated shade vivid and distinct, especially at costa, and this is a quick character. The general appearance of the primaries varies immensely. Sometimes the base is dead black; again the black color spreads to t. p. line; again it is confined to the internal margin; this latter variety is *C. parvula,* Edwards. Again the whole wing is blackish, except the vivid white subtermiual shade which rarely is obsolete inferiorly. The thorax is always pale. Hind wings pale yellow; median band narrow, flexuous; hind border usually continuous, generally broken in var. *parvula.* Exp. 35 to 40 mm.

Rhode Island, New York; very common.

Some of the varieties of this little species are exceedingly pretty. I have been told the larva is to be found on the common Locust (Robinia).

51. **Catocala gracilis,** *Edwards.*

Catocala similis, Edwards.

♂ ♀.—Primaries clear bluish grey varied with blackish. Lines faint, obsolete. A basal dash. Internal margin washed with blackish, broadly and

lightly, from t. a. line outwardly. T. p. line perpendicular with a broadly marked sinus, with one hardly prominent tooth. Two specimens in Mr. Edwards' Collection have the wings somewhat hoary and the lines more perceivable. These are labelled *similis*. This species has the primaries of a purer grey than usual. It approaches C. androphila in the appearance of the wings; the secondaries are deep yellow, with a narrow *even* median band discontinued much before the margin. Hind border discontinued and appearing again as a detached large spot near the angle. Beneath the band is attenuate. Thoracic lines distinct. Veins of the primaries above indicated. Expanse 40 to 42 mm.

New York, Rhode Island; not uncommon.

52. **Catocala androphila,** *Guenée.*

Corisce amica, Hübner.

♂ ♀.—Primaries pale gray, the lines fine, not very evident, the t. a. line the heavier marked. A distinct black median shade on costa above the reniform and continued beneath it, running upward to external margin below apex. A brown shade fills the space left by the exserted portion of the t. p. line beyond the reniform. This black median shade is marked on costa, but else sub-obsolete in all the males I have before me and the brown shading very faint. The t. p. line minutely dentate without prominent teeth. Subreniform small, pale and both spots inconspicuous and often incompletely ringed. The serrated sub-terminal white shade is tolerably distinct; fringes dark. Hind wings bright yellow; a broad black terminal band is squarely discontinued and appears as a black dot at anal angle. Fringes dark except at apex, where is a small yellow patch. Beneath the marginal band is brokenly and narrowly continued to anal angle and the median band is indicated by tolerably large spots or fragments. A specimen from Texas differs by its dirty, ochreous grey primaries much shaded with deep black and may be a distinct species. Expanse 40 to 45 mm.

Eastern States, southward. Not rare.

According to Guenée, who describes from Abbot's unpublished drawings, the larva feeds on oak. The specimen in the British Museum determined as "Catocala amica" is an Ephesia elonympha, *Hübner.*

53. **Catocala lineella,** *Grote.*

♂ ♀.—A little smaller than C. androphila. The primaries notably darker, being powdered with glaucous, bluish or greenish-grey, and black scales on a paler ground. Lines black and more distinct while similar to C. androphila; subreniform connected more or less evidently with the t. p. line. Serrated whitish subterminal shade and marginal black lunated line distinct. Secondaries deep yellow, a few dusky hairs at base. Terminal band much as in C. androphila. Beneath, the median band is merely expressed by two small disconnected dots, of which the upper is sometimes wanting and occasionally both. Expanse 36 to 38 mm.

Same localities as C. androphila.

Perhaps this is Guenée's var. *a* of C. androphila. I have a number of coincident specimens and I believe it to be distinct specifically.

54. **Catocala messalina,** *Guenée.*

♂.—Habit of C. androphila, but a little larger. Primaries of an even violaceous brownish grey, with all the anterior half shaded with pale grey. The ordinary lines are faint, flexuous, not angulated, nearly parallel and very contiguous inferiorly. Reniform continuous to the t. p. line. Hind wings pale ochre yellow, base a little dusky, without median band, but with a wide hind border continued to both margins, and having a single sinus not far from anal angle. Beneath, paler with traces of the median band. Abdomen slender, acute, brown beneath. Thorax grey, with a brown collar.

Not identified by me. I have translated Guenée's description on page 107, Vol. 3, of the Noctuelites. This species should be recognisable from the continuous hind border of the secondaries, an exceptional character of this group.

In addition to the above enumerated fifty-four species of the genus, of which seven have not been seen by me, Dr. Behr has described three species from the Western District in these Transactions which remain equally unknown to me. Most of the material I have used is in the collection of the American Entomological Society, together with Mr. Edwards' specimens kindly loaned me for examination.

After writing so far my kind friend, Mr. Charles A. Blake, sends me specimens of two black winged species of Catocala from Pennsylvania which I describe here :

2. **Catocala lachrymosa,** *Guenée.*

♂.—Anterior wings dark, blackish, sparsely sprinkled with bluish cinereous, shaded with deep brownish on the sub-terminal space. Primaries a little more produced at the apices and the expanse greater compared with C. epione. T. a. line broadly marked on costa, thence thrice waved to internal margin, preceded by a cinereous shade which becomes whitish, broad and evident on the margin. T. p. line with two prominent discal teeth, a deep inflection below vein 2, distinctly preceded by whitish scales on the margin. The two lines are here very approximate. Sub-terminal line black, distinct, dentate, preceded by cinereous scales which are also more evident on internal margin as well as towards costa. Secondaries deep black, with white fringes, cut with black centrally. Beneath, the hind wings are largely whitish at base; beyond a narrow, rivulous white m. band. Thorax with black lines, similar in color to primaries. Abdomen black above; body whitish beneath. Expanse 80 mm.

This species seems in a measure intermediate between C. epione and C. desperata, while more nearly resembling the latter. Guenée's description is, as might be expected, trenchant and accurate. All the lines are very black and evident, though the two median are less broad than in C. epione, in appearance more as in C. desperata. The black sub-terminal is a ready character.

3 *bis*. **Catocala Robinsonii**, *Grote*.

♂ ♀.—I have alluded to this species above under C. insolabilis. The primaries are evenly smooth, pale greenish cinereous, without shades. This is a little stouter than C. insolabilis; larger and of a different hue compared with C. retecta. Median lines narrow and black. T. p. line acutely dentate; subreniform open. Median shade perceptible above reniform narrowly on costa, elsewhere not apparent. Median lines accompanied by pale shades. Subterminal indistinct, dentate, consisting of a darker outer and paler inner shade line. Hind wings black with white fringes. Beneath with narrow median white bands on both wings. Expanse 75 mm.

With the Californian species noticed by Dr. Behr, we have now fifty-eight (58) described North American species of Catocala, nine of which remain unknown to me.

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Descriptions of North American NOCTUIDAE.—No. 1.

BY AUG. R. GROTE.

The typical specimens described in the present Series of Papers are contained in the Collection of Lepidoptera now belonging to the American Entomological Society and separately preserved, formerly the property of Mr. C. T. Robinson.

These descriptions have been written preparatory to a Revision of the North American Noctuidae, in which an attempt will be made to define the genera more completely and in accordance with the more recent classificatory views expressed by Lederer. — Dr. Herrich-Schaeffer's system for designating the nervulation has priority, seems the best and is used here.

1. **Hadena (mamestra) badistriga**, n. sp.— ♂ ♀—Palpi thickly scaled, third joint small, concealed, maxillæ moderate, eyes hairy. ♂ antennae simple, hind tibiae with two pair of small unequal spurs. Head and thorax blackish brown, collar pale. Anterior wings pale along costal region to beyond t. p. line. Ordinary spots obsolete. Of the usual lines only the t. a. and t. p. lines evident; these black, narrow, single, continuous, distinct. T. a. line running obliquely outwardly, roundedly projected to base of cell, thence inversely to internal margin. T. p. line evenly and greatly projected outwardly over the nervules without the cell, below which it runs inwardly and forms a notch on sub-median fold where it meets a broad blackish-brown shadeddash extending from base of wing to this point. A second similar dash along the disc, stretching from t. a. line along median fold. The wing is shaded with brown, more

continuously terminally where the veins are marked with blackish. A double narrow interrupted terminal line. T. p. line followed by a paler shade rendering it very distinct. ♂ secondaries wholly whitish, ♀ darkly bordered, crossed by a faint post median and distinct terminal line; fringes whitish. Beneath, the t.p. line on primaries is faintly marked as is the transverse line on secondaries superiorly; marginal interrupted lines distinct. Expanse 30 to 32 mm.

Habitat.—Canada, New York State.

Varies in the more or less evident pallor of the collar and costal region of primaries. I have bred this species from larvæ found on the common honeysuckle Saunders Collection, No. 631.—Differs much from its congeners in appearance. The white ♂ secondaries are somewhat pellucid.

2. **Emmelia (agrophila) apicella,** *m.*— ♂ ♀.—Head and thorax above orange ferruginous; this color extends over the primaries obliquely downward at base. Beyond this, and margining it, a pale, whitish shade runs obliquely downwardly and is continued vaguely along the internal margin; apices with a similar distinct oblique patch, while the extreme costal edge is tipped with ferruginous; else the primaries are blackish as are the fringes except along the whitish apical patch. Hind wings and abdomen above blackish. Beneath the body parts are whitish. Expanse 16 to 18 mm.

Habitat.—Central Alabama; June.

This little species is not rare, occurring with A. leo and A. dama, *Guenée.* It is very distinct in its ornamentation from any of Guenée's species, of which it is possible there are in reality only two, A. onagrus being perhaps identical with A. leo. Under a microscope the blackish portion of the primaries above in apicella are seen to be dusted with pale scales. There are no traces of the ordinary spots and lines.

EUTOREUMA, *m.*

The porrect pointed palpi extend for half their length beyond the head. Front with a large rounded clypeal swelling, filling up the space between the eyes. Minute black ocelli. Maxillae moderate. ♂ antennae minutely and finely bristled. Abdomen long, linear. Thorax compact and squared. Wings angulate. Forewings produced at apices and extremity of vein 4. Veins 3, 4, 5, equidistant at base. Cell open; veins 6 and 7 together from s. c. nervure opposite 5. Vein 8 shortly out of 9 to apex. Veins 9 and 8 approximate. Vein 10 out of 9 to costa; 11 running close to s. c. nervure and 10 to costa. Hind wings with vein 5 equally strong; external margin rounded, cut away at anal angle from vein 1. Middle tibiae with terminal, and hind tibiae with two pair of unequal spurs. A species of moderate size, with dark discolorous collar elevated in front, close squamation, naked

clypeus hid by the long second palpal joint, even fringes, dark colors and appearing allied to Toxicampa.

3. **Entorcuma tenuis.** *m.*—♂ ♀.—Brownish ashen; head palpi and collar blackish, discolorous with the paler thorax and abdomen. Forewings more or less clouded, or deeper colored superiorly, especially towards apices within apical streak. All the veins narrowly and neatly picked out by ochrey scales. Lines fine, ochrey with darker edges. T. a. line nearly straight. T. p. line even, acutely angled on vein 6, at which point it is joined by a distinct even oblique apical streak similarly colored. Below it runs evenly obliquely to internal margin nearly continuously with the apical streak. This latter with the upper part of the t. p. line above vein 6 form the two limbs of a Y. Reniform large, narrowly annulate with ochrey scales. Median shade dark, diffuse. Subterminal line fine, dentate, pale, issueing from above the middle of apical streak; terminal space pale with pale terminal line. The evenness and tenuity of the lines is noticeable. Secondaries a little darker than primaries; an oblique median line, similar to t. p. line, most obvious towards anal angle; a faintly marked subterminal line. Beneath, without markings; neuration perceivable from the folds in the wings. Expanse 28 to 30 mm.

Habitat.—Central Alabama; July, August. Of frequent occurrence.

MATIGRAMMA, *m.*

Palpi moderate, porrect; head rather square in front; clypeus roundedly swollen, scaled; epicranium somewhat raised longitudinally. Maxillae moderate. Antennae simple, minutely ciliate in ♂. Abdomen linear; with the thorax not tufted or crested, smoothly scaled. Wings full, entire, rounded, with corresponding ornamentation. Fore wings with vein 2 a little nearer 3 than usual; 3, 4, 5 equidistant at base, divaricate; 6 opposite 5, from the point of divarication of 9 which crosses 7, thus closing and forming a very small accessory cell. Vein 8 to apex; 9 to costa; 10 from accessory cell; 9, 10, 11 approximate. Hind wings 9-veined; 3 and 4 from one point; 5 a little removed, equally strong; cell open as on primaries. A species of moderate size, with pulverulent, obscure, geometriform ornamentation or rather perhaps that of Mania. With a faint resemblance to some of the genera allied to Homoptera, this species seems rather related to Euclidia.

4. **Matigramma pulverilinea,** *m.*—♂ ♀.—Olivaceous blackish with powdered pale or greyish scales. Basal half-line and t. a. line faint, atomical, irregular waved, blackish, edged with pale scales. Median shade blackish, continued, irregular. Reniform difficult to perceive, of the ground color of the wing, with an encircling ring of loosely massed pale scales, erect, constricted medially. T. p. line and sub-terminal more evident and similar. The first is moderately and widely rounded superiorly, slightly interspaceally lunate, powdery grey with blackish bordering lines. Sub-terminal sub-parallel with the t. p. line, continued, distinct, similar in appearance with the t. p. line but without evident

blackish edging line; from the course of the t. p. line, these two nearly parallel lines are divaricate at costa. The sub-terminal space between these two lines is blackish, darker than the wing elsewhere, free from pale scales at the sides. Terminal line a series of blackish interspaceal marks followed by whitish scales. Fringes concolorous with terminal space. Secondaries resembling primaries; the median shade line obsoletely (not always perceptibly) continued. The t. p. and subterminal line are here more or less obviously continued from the primaries, as is the terminal line. Beneath almost without markings; faint dark discal shade dots and a more or less evident darker median line on hind wings. Expanse 30 to 34 mm.

Central Alabama; June and August. Quite common, entering the house to light. In this and preceding genus I take a slight tubercle on each side behind and very close to the eye as ocelli.

PLEONECTYPTERA, *m.*

The single species hitherto described has been referred to Heliothis. It belongs however to Guenée's Quadrifidae or Packard's sub-family Catocalinae. Fore wings 12 veined: veins 3, 4 at base, divaricate; 5 from incomplete cross vein; costal veins aggregated; 8 thrown off shortly from 9 to apex; 9 crossing 7 and thus forming a small accessory cell above dise from which 6 is thrown off below; 6, 7, 8, divaricate; 11 out of centre of m. nervure to costa, beyond it the nervure is a little bent; 10 out of accessory cell near extremity, here 9, 10, 11, run closely together. Hind wings with vein 5 equally strong. Male fore wings beneath with a tuft of rigid hairs directed upward on vein 2 and a second above on median nervure. Legs finely scaled, ♂ hind tibiae bent, with a long external pencil of hair, middle and hind tibiae finely spurred. Palpi hanging, divaricate; maxillae moderate, antennae simple to the naked eye, ♂ with fine and short bristles. Body linear, closely scaled, abdomen a little longer than secondaries, ♀ pointed, ♂ with swollen genitals. The species resemble Geometridae and are bright colored.

5. **Pleonectyptera pyralis,** *Hübner* sp.—♂ ♀.—Head and collar dark purplish lead color, discolorous with thorax and abdomen which are yellow. Wings with corresponding ornamentation and color, yellow to the t. p. common line, beyond which they are dark reddish as are the fringes, less completely so in ♂. On these broad reddish margins may be seen a series of dots composed of black and white scale points, the common sub-terminal line; a dark apical streak; the t. p. line is yellow centered, geminate, its inner line blackish, acutely projected opposite the disc, oblique. M. shade and t. a. line continued, narrow, faint, blackish; former running just within the clouded reniform; orbicular a small black dot. Median shade continued across hind wings, faint, very near the equally faint discal streak. Beneath, the body and wings are stained with bright orange-red. ♂ Thorax white. Three black continuous ri-

vulous lines cross both wings; discal spot on primaries large and distinct. Expanse 30 to 32 mm.

Cental Alabama; July. Readily flies when disturbed.

6. **Pleonectyptera geometralis.** *m.*—♀.—Size, ornamentation, and coloration beneath of ♀ P. pyralis; but above the wings are reddish fawn color, not clear yellow to the common t. p. line. Outside of this line the wings are terminally but little more reddish than centrally. The median shade and t. a. line are dark reddish; orbicular dot a little larger and m. shade closer to the less prominent reniform spot compared with P. pyralis. On the secondaries the common oblique t. p. line is removed nearer the base of the wing, close to the common m. shade line, the latter fusing with the discal mark.

Same locality with P. pyralis; June. A single specimen taken. Very distinct in appearance from the want of contrast in color between the wings terminally and centrally, so obvious in P. pyralis.

7. **Pleonectyptera phalaenalis,** *m.*—♀.—Much smaller than the preceding and differently colored and ornamented. Palpi divaricate and structure of body parts as in ♀ P. pyralis. Pale dull olivaceous fawn color with a reddish tinge especially on hind wings. On primaries above only two lines visible; the t. a. and t. p. lines, which are approximate. Both are obsoletely geminate, with pale included shade; the inner line wanting in the t. a. line and the outer in the t. p. line. Reniform blackish, sub-quadrate, relatively large, erect; orbicular a dot on the straight t. a. line. T. p. line slightly sinuate or projected superiorly. Hind wings with faint traces of an oblique transverse line as in the preceding species. Body above, concolorous with wings. Beneath, wings and body parts stained with vermillion. Above traces of a common dotted sub-terminal line. Beneath black discal dots and a faint black common transverse line. Expanse 24 mm.

Same locality with the preceding. A single specimen; August.

8. **Hypena toreuta,** *m.*

Hypena internalis, Rob. Ann. N. Y. Lyc. (nomen bis lectum).

♂ ♀.—Primaries entirely obscure sooty black. Ordinary lines indicated by minute white dots. On internal margin without and at base of the usual faintly indicated t. p. line is a conspicuous stained white spot. Secondaries blackish. Orbicular replaced by a small tuft of deep black raised scales. Expanse 28 to 30 mm.

Habitat.—Middle States. The female is a little the paler and allows the usual ornamentation of the primaries above to be more easily perceived. Very recognisable from the whitish blotch on internal margin. Not in frequent in various localities in New York State. The name given by Mr. Robinson has been used in the genus by Mr. Guenée, for a different species.

9. **Renia discoloralis,** *Guenée.*

♂ ♀.—This is the largest of our species of Renia, a genus readily recognised from the characters offered by the antennæ and labial palpi. The male antennae are thickened and finely bristled for over three-

quarters of their length when they are provided with a long dense and rigid tuft of hair, beyond this they are slender and curled. The female antennae are simple, and in both sexes relatively short. The male palpi have the second joint disproportionally elongated, fringed with long scales above, and are porrected; the female palpi are projected straightly forward after the fashion of Hypena, except in R. restrictalis. The structure of the palpi however varies slightly with the species. The male R. discoloralis has the primaries above of a clear brown, more or less pale owing to an admixture of light colored scales giving the wings in some specimens a powdery appearance. The t. a. line is narrow, thrice unequally waved. Median shade diffusely shaded, of varying distinctness, oblique. T. p. line inwardly lunulate, irregular, obsoletely geminate, the outer line hardly discernible and the line itself often obliterate. Orbicular small, usually distinct, rounded, pale yellowish. Reniform narrow, sub-luniform, clear pale yellowish or ochrey with an upper and lower black included dot; often these dots are connected by a middle line. Sub-terminal line distinct, geminate, with pale included shade, broken opposite the cell, projected on vein 4, again broken or indistinct below vein 3. A terminal line of interspaceal black points. Secondaries dark, crossed by two distinct lines. The male antennae are tolerably long from the base to the tuft. The long palpi porrect.

The female is usually discolorous. The sub-basal, sub-terminal and terminal fields of the primaries above are paler than the rest of the wing and give it a blotchy appearance. The color varies considerably. One specimen from Virginia is evenly ochrey griseous and has the ordinary spots deep yellow while the wing, thorax and head is more or less sprinkled or stained with deep yellow scales. The shorter antennae are simple; the labial palpi projected straightly forward, equally as long as in the the male, terminal joints divaricate. One specimen resembles the ♂ in color but the primaries are more profusely powdered with pale scales. Expanse 35 to 40 mm.

Habitat.—New York, Pennsylvania, West Virginia, Virginia.

Not rare. Mr. Walker's *Hypena fallacialis* is a synonym. In the British Museum Collection the most discordant material has been arranged under Hypena, and many of the descriptions in the List under Hypena are of no value whatever.

10. **Renia brevirostralis,** *m.*—♂ ♀.—Pale ochrey or bone color. Male antennae shorter altogether and particularly so from the base to the usual tuft, compared with R. discoloralis. Female antennae simple. Male palpi porrect,

proportionally a little shorter than usual. Female palpi long, projected straightly forward, third joints divaricate. The sexes are alike in color, but the female primaries are a little deeper toned and the lines are less distinct except the sub-terminal. The primaries have a peculiar dotted appearance less from a sparse sprinkling of black scales than from the fact that little is usually perceivable of the lines than a series of distinct black nervular dots. Median shade more or less evident below the reniform, diffuse. Ordinary spots but little apparent, pale, of the usual shape; reniform with two black dots, but these are sometimes wanting and sometimes the spot is incompletely edged with dark scales. Sub-terminal line consisting of a geminate series of dots with a paler included shade; the line becomes more or less continuous towards costa. Secondaries paler than primaries with two tolerably evident and continuous transverse lines and a terminal series of black points as on primaries. Expanse 30 to 32 mm.

Habitat.—Pennsylvania, Alabama. Not unusual. Its pale Herminia-like color and dotted ornamentation render it very recognisable.

11. **Renia larvalis.** *m.*—♂ ♀.—Compared with R. brevirostralis the male antennae are longer. The position of the longer palpi does not differ between the sexes as much as usual, since in the male these are less obliquely porrected. This species is dull purplish griseous, evenly colored, with obliterate ornamentation. The ordinary spots are pale, yellowish and of the usual appearance; in all my ♂ specimens without dots; my single female has them distinctly connected. M. shade faint. The t. p. and sub-terminal lines barely perceptible; darker, irregular. Terminal lines as in R. brevirostralis but on secondaries mere continuous. Expanse 32 to 34 mm.

Habitat.—Pennsylvania; Texas. The Texas specimen (Belfrage leg.) does not differ except by being a little darker and more distinctly marked. This species is but little larger than R. brevirostralis; the color is dull, obscure and faded looking. The t. p. line when perceivable is narrow, irregular, much as in R. discoloralis. The subterminal line is usually more apparent and is indicated by dotted aggregations of dark scales. The whole insect is very inconspicuously marked. The male antennae are rather noticeably pale colored.

12. **Renia restrictalis.** *m.*—♂ ♀.—The narrowest species known to me. Glossy purplish blackish, darker than R. larvalis. Antennae as usual, but the female palpi are shorter and notably porrected, more so than in the male, in which sex they agree in appearance with R. larvalis. Lines indistinct, except sub-terminal which consists of a series of small *equal* double dots (the outer faint) with pale included shade, much as in R. brevirostralis. Ordinary spots small, as usual yellowish; reniform in all my specimens without dots. Secondaries nearly equally dark and concolorous with primaries with tolerably evident transverse lines. The sexes do not differ in color, but as in R. brevirostralis and R. larvalis, the male wings are a little narrower, primaries more pointed at the tips, while in the female the wings are fuller, the external margins more roundedly exerted. Expanse 27 to 28 mm.

Habitat.—Pennsylvania. This species reminds one a little of Aglossa.

In all the species hitherto discussed the transverse posterior line is narrow, irregular, lunulate or rivulous, tending to be marked with nervular dots. In the two following it is even, of the usual Noctuid subsinuate appearance and quite distinct.

13. **Renia centralis,** *m.*—♂ ♀.—Blackish, obscurely colored. Size small, form slight, wings rather full; ♂ antennæ slender, ornamented as usual, ♀ simple; ♂ palpi long, strongly porrected, ♀ palpi projected obliquely forwards. Deeper shaded on costal region. T. a. line narrow, linear, irregular. Orbicular yellowish, indistinct, black ringed. Reniform yellowish, of the usual form, black ringed and black dotted, inconspicuous. T. p. line irregular, linear, followed by a pale shade apparent at costa. Subterminal followed by a pale shade also apparent at costa. Terminal black nervular dots. Secondaries nearly concolorous with primaries with the usual ornamentation, lines very evident relieved by very pale shades towards anal angle. Beneath the two subparallel common wrinkled lines crossing both wings are very distinct and relieved by following pale coincident lines or shades; blackish discal marks on both wings. Expanse 23 to 26 mm.

Habitat.—West Virginia.

More distinctly marked than the two preceding species, while similar in color.

14. **Renia pastoralis.** *m.*—♂.—Palpi porrect; male antennae as usual, wings a little wider than in preceding species. Dull obscure brownish, paler within t. p. line. Reniform with the customary dots, less prominently discolorous than usual. T. p. line even, gently curved, continuous, pale with indistinct dark marginal lines. Subterminal similar in appearance, but less distinct, pale, irregular inferiorly, broken opposite the disc and again inferiorly more or less plainly. Terminal line dotted on primaries, continuous on hind wings. Hind wings like primaries, a little lighter colored within the two transverse pale lines continued from primaries. Beneath the pale common line is evident. Expanse 28 mm.

Habitat.—Pennsylvania. My two specimens differ slightly and of one I have no locality. The transverse anterior line is very faint and median shade not perceptible in my specimens.

15. **Renia Belfragei,** *m.*—♂ ♀.—Darker colored than R. pastoralis with distinct lines. Palpi a little longer in the female, in both sexes sub-porrected, in the male held as in R. pastoralis. T. a. line even, distinct, dark, with preceding pale shade. Reniform black dotted, small, inconspicuous, not discolorous, as in R. pastoralis. T. p. line even, curved, continued, resembling t. a. line, with a following pale shade. Sub-terminal line indistinct, propinquitous, vaguely indicated by darker scales, with a faint succeeding pale shade, irregular. Terminal narrow black lines sub-continuous on both wings. Secondaries similarly colored with primaries and with the t. p. line continued across them nearly as distictly. Beneath the propinquitous t. p. and sub-terminal lines of the upper surface are distinguishable. Expanse 26 to 27 mm.

Habitat.—Texas (Belfrage leg.). Similar to R. pastoralis but darker and more distinctly darkly lined.

I am sure I hope Mr. C. V. Riley will continue to copy my descriptions in this Family in the Missouri Reports, and avail himself, even without acknowledgment, of all other information useful to himself in my writings, without at the same time continuing a style of remark that is repugnant to good taste and cannot deserve any worthy popularity. In, as I believe, redescribing Acronycta lepusculina *Guenée*, the remarks as to the description of A. occidentalis, *G. & R.*, only betray an unacquaintance with the species of the genus; otherwise, since the European A. psi and the American A. occidentalis, are not at all to be properly compared with the species of Mr. Riley discusses, it would seem to be only for the sake of the opportunity for a reflection that a comparison is instituted. An entire description of A. occidentalis seemed superfluous, since our species offers but few points of difference when compared with its European analogue; these points were briefly given. And no one else seems to have misunderstood our species; while the synonymical remarks accompanying the description rendered a mistake impossible to any informed person. Mr. Saunders, in the pages of the Canadian Entomologist, has since found some of the slight points of difference drawn from the imagos inconstant, and has added other slight specific characters, while showing the larvae of the two species to be quite distinct in color and appearance. In the birth of his new species of Acronycta, Mr. C. V. Riley indulges in a burst of wild comparison that betrays rather than conceals his unacquaintance with his subject. In another place Mr. C. V. Riley exhibits a fine sample of that impertinence which has its origin in lack of thought and consideration, in refusing to regard the West Indian and South American Philampelus satellitia (*lycaon*, Cramer), as distinct from our United States Philampelus pandorus (*satellitia* ‡ Harris, *ampelophaga*, Bois. MSS.), and this without knowing both of the species he incorrectly unites. It is perhaps not to be wondered at, that while gathering all his synonymical information in the Sphingidae from my own and Mr. Robinson's Catalogue and List, Mr. C. V. Riley should accept so much and rudely and badly criticise so little. For his information, and not in defense of Hübner or Geyer, it may be stated that Cnotus is taken from the Greek, and not necessarily any more "gibberish" than the surname of the gentleman. I think that the literary Executors of the late lamented Mr. Walsh have cause for an action for piracy against Mr. C. V. Riley for using quotation marks to the verb eliminate, without due credit to the author of the witticism. But then of course much more valuable property of the deceased is worn and badly worn by our Entomological Elisha.

Synopsis of the North American species belonging to the Genera LEUCOSPIS, SMICRA and CHALCIS.

BY E. T. CRESSON.

Genus **LEUCOSPIS,** Fabr.

Abdomen petiolate.....**bulbiventris.**

Abdomen sessile or subsessile.

Body black, immaculate, without metallic lustre; wings black, hyaline at tip.....**apicalis.**

Body black, immaculate, with a green metallic lustre; wings hyaline.

Abdomen green-sericeous at apex; the ovipositor reaching to the apex of scutellum.....**mexicana.**

Abdomen bright golden at apex; ovipositor not reaching to base of second abdominal segment.....**Sumichrastii.**

Body more or less marked or banded with yellow or red:

Abdomen short, broad, much narrowed at base; posterior femora very large, broadly margined above with yellow; abdomen with two or three yellow bands; wings fuliginous.....**texana.**

Abdomen elongate, not much narrowed at base:

Ovipositor long, reaching to base of abdomen:

Prothorax with lateral and posterior margins broadly yellow; scutellum almost entirely yellow; the ♀ with apex of abdomen ferruginous.....**Poeyi.**

Prothorax with lateral and posterior margins narrowly yellow; scutellum narrowly yellow at apex.....**affinis.**

Prothorax with lateral and posterior margins red; scutellum red at apex.....**floridana.**

Prothorax with posterior margin only narrowly yellow; scutellum narrowly yellow at apex:

Apex of abdomen broadly yellow; posterior femora with a yellow stripe beneath.....**azteca.**

Apex of abdomen and posterior femora entirely black.....**dubiosa.**

Ovipositor short, not reaching to base of second abdominal segment; prothorax with two yellow bands; scutellum immaculate; abdomen with a silvery band at apex of second and third segments..**tolteca.**

1. **Leucopsis bulbiventris,** n. sp.

♂.—Black, densely punctured, more or less tinged with green and purple; head small, not wider than thorax, face purplish, clothed with short whitish pubescence; antennæ ———, the antennal grooves very deep and bright metallic green; mandibles small, robust, reddish at base; prothorax with a narrow, interrupted, yellowish band near posterior margin; mesothorax more obviously green over tegulæ, posterior margin narrowly yellow; scutellum broad, subquadrate, immaculate; postscutellum small, flat, transverse, rounded posteriorly, smooth and shining; metathorax green, with a patch of dense silvery seri-

ceous pubescence on each side behind each posterior wing; tegulæ piceous; wings yellowish, dusky on costal margin, especially beyond stigma; legs short, tips of anterior femora within, their tibiæ within and their tarsi pale yellowish; intermediate legs ——; upper edge of the posterior coxæ, a spot beneath at tip, a spot on trochanters beneath, upper edge of their femora, a line beneath before the teeth, dilated basally, a stripe on their tibiæ behind, not reaching the base, and their tarsi, pale yellow; femora small, ovate, polished within, teeth numerous and minute except the basal one which is largest; abdomen as long as head and thorax, clavate, being slender at base and much swollen at apex, incisures of segments indistinct; first segment narrow, slightly dilated and convex at base and somewhat contracted before apex; second segment narrowed at base, the apex of the third (?) margined with silvery sericeous pubescence; fourth (?) segment with dense silvery sericeous pile, converging towards the disk; apical segment very small. Length .47 inch.

Hab.—Mexico. One specimen collected by Prof. F. Sumichrast. The shape of the abdomen recalls that of some species of the Dipterous genus *Conops*, although rather more strongly clavate.

2. **Leucospis apicalis.** n. sp.

♀.—Dull black, tinged with brownish, densely punctured, face with short silvery pubescence, clypeus, mandibles and scape beneath pale ferruginous; prothorax at sides and posterior margin more or less brown ferruginous, a transverse raised, sometimes pale line before posterior margin; scutellum brownish posteriorly; metathorax with pale golden pubescence; tegulæ dull fulvous; wings blackish, apical third hyaline; legs more or less tinged with brown, posterior femora immaculate, with about nine short, robust, obtuse teeth; abdomen elongate, slightly compressed at tip, subsericeous, immaculate, more or less tinged with brownish, especially at apex, densely punctured, shining laterally; ovipositor reaching to tip of scutellum. Length .40 inch.

Hab.—Mexico. Prof. Sumichrast. Two specimens. Easily recognized by the immaculate dull black body and the blackish wings tipped with hyaline.

3. **Leucospis mexicana.**

Leucospis mexicana, Walk. Jour. Ent. i, p. 20, ♀.

Hab.—Mexico. Prof. Sumichrast. Three ♀, one ♂, specimens. The thorax and apex of abdomen of ♀ is strongly metallic green, clothed with short pale sericeous pile; face pale ferruginous, with a silvery pubescence, as well as posterior orbits; a band of pale silvery green pubescence behind scutellum; base of abdomen with a smooth polished excavation; posterior coxæ smooth and polished on the outer flat surface; their femora with six to eight small teeth beside the large obtuse basal tooth. The ♂ seems to accord tolerably well with Westwood's description and figure of *Metallopsis cayennensis* (Germar Zeits. Ent. i, p. 264, pl. 4, fig. 4). The face is pale reddish as in ♀, with a cupreous reflection, while the body is more

brilliantly green, especially the abdomen, the apex of which is golden green and somewhat depressed, the very large second segment has a fine, central longitudinal carina on its entire length; the legs are tinged with brown, the posterior femora margin above and beneath from and including the large tooth, to the base, with yellow as in the ♀, their tibiæ are reddish at tips, with a yellow line behind reaching to basal third; the antennal grooves are deep and bright cupreous. Length of ♀, .30—.45; of ♂, .35 inch.

4. **Leucospis Sumichrastii.** n. sp.

♀.—Short, broad, densely punctured, black, more or less tinged with metallic green; face and posterior orbits with a fine silvery pile; occiput flat, transversely striated, bright green, bounded above by a sharp carina; antennæ black, scape above and base of flagellum beneath ferruginous, scape yellowish beneath; prothorax broad, dull black; scutellum broad, with a smooth shining spot on apical middle; metathorax above pale ferruginous, clothed with a dense silvery-white pubescence; tegulæ piceous; wings hyaline, the costa, narrowly beyond stigma, continued more broadly on upper half of apical margin, fuscous; four anterior tibiæ tinged with ferruginous within, tips of posterior coxæ above, and narrow upper and lower margin of their large femora, not quite reaching apex beneath, pale yellowish, the band beneath from large tooth to base rather broad, the small teeth about eight in number; posterior tibiæ reddish behind; abdomen with first segment narrower than the second, nearly quadrate, smooth, polished and deeply excavated at base, apex thickly punctured; base of second segment contracted, this segment finely and densely punctured, the apex broadly margined with a dense bright golden pubescence; apical segment, except at base, clothed with a dense bright golden pubescence and when viewed laterally is interrupted on each side of middle by a longitudinal greenish stripe; ovipositor short, porrect, not exceeding in height that of the second segment, although the groove extends nearly to the base of the segment. Length .32 inch.

Hab.—Mexico. Prof. Sumichrast. One specimen. A short robust form, easily distinguished by the abdomen being ornamented with bright golden at apex.

5. **Leucospis texana.** n. sp.

♂.—Black, opaque, with a rather dense pale sericeous pubescence and large dense punctures; two obscure reddish spots on middle of face; mandibles and palpi rufo-piceous; antennæ reddish, black at tips, scape yellow; two spots behind antennæ, posterior margin of prothorax, line over tegulæ, posterior margin of scutellum, small spot beneath wings and an oblique line on each extreme side of metathorax, also yellow; sides of prothorax and tegulæ pale ferruginous; wings fuliginous; legs ferruginous, anterior coxæ, a stripe on each side of their femora, base of intermediate femora, and posterior coxæ above and at base beneath, black; four anterior knees and tibiæ in front yellowish; posterior femora very large, almost circular, a large blackish stain on inner side and a large black spot on outer side, broadly margined above with yellow, and a yellow spot beneath near base, armed beneath with three very large, long, distant

rather sharp, black teeth and near apex a smaller blunt one, beyond which are two or three minute serratures not distinctly defined; posterior tibiæ yellow posteriorly; abdomen short, subglobose, narrowed at base, extreme base smooth and rufo-piceous; a narrow band near base, two broader approximate bands, sometimes confluent, near apex, and a lunate spot at apex surmounting an oblong smooth depressed space, yellow. Length .30 inch.

Hab.—Texas. (Belfrage.) Two specimens. This has a remarkably short, robust form, different from that of any of the other species, and approaching more nearly to that of *Sumichrastii*, although quite different. The very large, almost circular, posterior femora, with only four distinct teeth, three of which are long, slender and acute, readily distinguish it from any other North American species.

6. **Leucospis Poeyi.**

Leucospis Poeyi, Guér. Icon. Rég. Anim. iii, p. 414. LaSagra, Hist. Cuba, pl. 18, fig. 4.

Hab.—Cuba. (Poey.) Two ♂ ♀ specimens. Readily distinguished from all the other N. A. species by the broad, heavy yellow markings. The form of both sexes is similar to that of *affinis*, to which it is allied also in ornamentation, although much slighter in the latter species. The prothorax is broadly margined, laterally and posteriorly, with yellow, leaving anteriorly a large semi-circular black mark, bicolored—reddish and black—in ♀; the scutellum is yellow except narrow basal margin; the metathorax, a large mark on posterior margin of pleura and also a line over tegulæ, are also yellow; tegulæ fulvous; wings yellow, tipped with dusky; legs yellow, with ferruginous coxæ tipped beneath with yellow; posterior femora fuscous, reddish above and rather broadly yellow at base and apex; abdomen ferruginous at apex, with a yellow streak on each side of ovipositor, a broad yellow band at apex of first segment and another on the third, the second with a small lateral spot; ovipositor attaining nearly to base of scutellum. The ♂ has only a spot on each side of metathorax instead of a band; base of coxæ black; abdomen with three broad, continuous yellow bands. Length ♂ ♀, .40 inch. Parasitic upon *Megachile Poeyi*, Guér.

7. **Leucospis affinis.**

Leucospis affinis, Say, Long's Second Exped. ii, p. 327, ♂ ♀, (1824).= *fraterna* Say, Bost. Jour. Nat. Hist. i, p. 269, ♂ ♀, (1835).= *subnotata,* Westw. Ent. Mag. ii, p. 215. (1835); Germ. Zeits. Ent. ii, p. 250, ♂, (1839).= *basalis,* Klug. MSS. Westw. Germ. Zeits. Ent. ii, p. 264. ♂ ♀, (1839).= *canadensis,* Walk. Jour. Ent. i, p. 17, ♂, (1860).

Hab.—Canada to Texas. Fifty ♂ ♀ specimens examined. This common species varies greatly in size (.20—.45 inch) and somewhat in markings. The vertex is more or less tinged with green or purple,

sometimes obsoletely so; the prothorax has the lateral and posterior margins generally entirely yellow, sometimes the latter are indistinctly so, while the anterior medial spot, which is generally distinct and transverse, is sometimes reduced to a dot or entirely wanting; the yellow lateral margin of metathorax, the yellow band on apex of scutellum and the yellow stripe beneath posterior wing, are distinct in all the specimens before me, while the two yellow dots on disk of the mesothorax are generally wanting; the posterior coxæ varies from almost entirely black to entirely ferruginous, and their femora have the basal and apical spots sometimes much enlarged, while their teeth vary in number and size; the abdominal markings vary but little, the lateral spot on second segment of ♀ is sometimes wanting and the two stripes on apex is sometimes much reduced; while in the ♂ the apical spot is sometimes wanting; the ovipositor of ♀ also varies slightly in length.

Var. **floridana.**—♂ ♀.—This has all the markings bright fiery ferruginous or reddish-yellow instead of yellowish-white; apical half of flagellum black, with the terminal joint dull ferruginous; the head is without any metallic lustre; the thoracic markings are all well-defined except the two discal marks on mesothorax, which are subobsolete; the wings are dark fuscous along costa; posterior coxæ almost entirely ferruginous, and their femora broadly reddish-yellow at tips, or reddish with a discal fuscous spot, the teeth numerous and minute, except the basal one, their tibiæ orange-yellow; first segment of abdomen ferruginous, with a narrow reddish-yellow band before apex, apical margin black; second segment immaculate; the subapical band on third segment rather narrow and regular, the two stripes on apical segment abbreviated, sometimes obsolete; the ovipositor attains the base of the abdomen. Length .45 in.

Hab.—Florida. Two ♀, two ♂ specimens.

8. **Leucospis azteca,** n. sp.

♀.—Black, densely punctured, clothed with a short whitish sericeous pile; face tinged with green and purple, vertex strongly so; extreme tips of antennæ fulvous, scape yellow; a narrow band near posterior margin of prothorax, narrow lateral margin of mesothorax, a broader band on apex of scutellum, sometimes a narrow line on postscutellum, apical margin of metathorax, generally interrupted, and a narrow oblique line on the flanks, all yellow; tegulæ brown or pale piceous; wings more or less dusky, darker along costa and at apex; legs black, sericeous, posterior coxæ, their femora within and all the tibiæ within, more or less tinged with ferruginous; posterior femora with a yellow stripe on their basal half beneath, not quite reaching the base, the teeth minute, except the basal one which is broad and blunt, their tibiæ with a yellow stripe behind; abdomen sericeous, first segment with a rather broad apical yellow band, the third segment with a narrow subapical yellow band behind which is a sublunate yellow mark enclosing a smooth shallow brownish fovea, sometimes interrupted by it, apex with a broad yellow stripe, broader beneath and divided by the ovipositor, which attains the apex of scutellum. Length .32—.40 inch.

Hab.—Mexico. Prof. Sumichrast. Three specimens. Easily recognized by the apex of abdomen being broadly yellow.

9. **Leucospis dubiosa.** n. sp.

♀.—Differs from *azteca* only as follows:—Smaller; posterior femora entirely black; abdomen with a narrow yellow band at apex of first segment and another at apex of third segment; apical segment entirely black, sericeous; wings fuliginous, paler on posterior half. Length .28 inch.

Hab.—Mexico. Prof. Sumichrast. One specimen. May prove to be only a variety of *azteca*.

10. **Leucospis tolteca.** n. sp.

♀.—Black, densely punctured; head tinged with dark green, clothed with a silvery sericeous pubescence; mandibles tinged with rufous; antennæ black, reddish at base of flagellum beneath, scape yellowish-white beneath; two narrow bands on prothorax, the anterior one more or less interrupted and abbreviated, (sometimes the posterior one is obsolete), the lateral margin of mesothorax and a broad band on posterior margin, before scutellum, yellow; scutellum immaculate, slightly tinged with green; metathorax pale ferruginous, densely clothed with silvery pubescence; tegulæ brown; wings pale fuscous, with a central longitudinal, hyaline streak; legs black, sericeous, coxæ more or less tinged with brown; a short stripe on anterior femora at tips above, their tibiæ in front, extreme tips of intermediate femora and base of their tibiæ, small spot at tip of posterior coxæ, a broad stripe on their femora above, not reaching base, and another beneath from large tooth to base, and their tibiæ, all yellow; tarsi pale fulvous; femoral teeth minute; abdomen short, robust, slightly contracted at apex of first segment, densely and finely punctured, clothed with a very short silvery sericeous pile; first segment shining, green above, with a deep piceous excavation at base, and before the apex a smooth polished piceous band; second and third segments each with a broad apical band of sericeous pubescence, changing from silvery to pale golden-green when viewed in certain lights; ovipositor short, porrect, not reaching to base of third segment, although the groove extends quite to base of second segment. Length .25 inch.

♂.—Differs only in the shape, color and sculpture of the abdomen, which is clavate, more strongly tinged with green, the second segment being much contracted at base; first segment less shining, more deeply and coarsely punctured, with no piceous band near apex, apex of abdomen clothed with a golden green pubescence, and the terminal segment very small. Length .25 inch.

Hab.—Mexico. Prof. Sumichrast. Four ♀, one ♂ specimens. This is our smallest species, resembling *Sumichrastii* more than any of its congeners; the form is, however, not so robust and the ♀ abdomen not abruptly narrowed at base of second segment; the yellow markings of thorax and the silvery bands of abdomen will easily distinguish this from *Sumichrastii*.

The following species have not been identified :—

Leucospis Shuckardi, Westw. Ent. Mag. ii, p. 214; Germ. Ent. Zeits. i, 241.—" ♂ .—Black; head with two rounded spots between eyes; base of mandibles reddish; antennæ black, scape fulvous, extreme apex of flagellum reddish; collar with two yellow band; disc of mesothorax with two small oblong spots and a subcuneiform lateral stripe, yellow; scutellum with a broad lunate yellow band; epimera of metathorax entirely yellow; abdomen with a broad band on first segment, a narrow one on second, and a rather narrow one on third, yellow, all interrupted medially and abbreviated laterally; apex with two lunate yellow spots; ovipositor attaining to the middle of first abdominal segment; anterior and intermediate coxæ black, posterior pair black, yellow at apex; four anterior legs yellowish-fulvous, base of femora obscure; posterior femora piceous-black within, apex fulvous, externally yellow, with a large, rounded, inferior black spot and armed beneath with six teeth; posterior tibiæ and tarsi fulvous, with an internal black line; wings fuscous. Length $5\frac{3}{4}$ lines."

Hab.—North America.

Leucospis Klugii, Westw. Germ. Zeits. Ent. i, p. 249; pl. 3, fig. 1.—" ♂ .—Opaque black; scape beneath ferruginous; narrow posterior margin of prothorax, lateral margin of mesothorax and a lunate band on apex of scutellum, yellow; basal half of abdomen black, apex yellow; first segment with posterior margin narrowly and indistinctly yellow, and second segment with black band on apical margin; legs fusco-piceous, apex of four anterior femora yellow; posterior femora externally fuscous, inferior margin narrowly yellow, internally fulvous, armed beneath with seven black teeth; wings pale yellowish. Length $4\frac{1}{2}$ lines."

Hab.—Mexico.

Leucospis integra, Hald. Proc. Acad. Nat. Sci. ii, p. 53.—" ♂ .—Black, covered with pale yellowish pile; antennæ yellowish beneath; thorax scabrous, with a spot of yellow pile posteriorly; tegulæ yellow; wings translucent; legs yellow, except basal half of first and second pairs of femora, posterior femora black, tipped with yellow. Length 5 mill."

Hab.—Not given; probably Pennsylvania. This is possibly nothing but *Chalcis ovata*, Say.

Genus **SMICRA**, Spinola.

Body entirely black, immaculate;
  Face entirely black:
    Petiole as long as remainder of abdomen and nearly as long as posterior coxæ; posterior femora black or brown, generally yellowish at base; antennæ long.....1. **microgaster.**
    Petiole shorter than remainder of abdomen and about two-thirds the length of posterior coxæ; posterior femora entirely black; the antennæ shorter.....2. **canadensis.**
  Face with a large angular white mark.....3. **albifrons.**
Body black, immaculate; abdomen more or less red:
  Posterior femora reddish-yellow above, base and spot beneath near apex pale yellow.....4. **flebilis.**

Posterior femora obscure reddish, varied with blackish, inner side mostly reddish.....5. **rufofemorata.**

Body black, more or less marked with white or yellowish:

Markings of thorax very small and indistinct; the posterior femora with a single pale dot on upper outer middle; the abdomen entirely black.....6. **delumbis.**

Markings of thorax small, but distinct:

Posterior femora with irregular whitish markings at apex, varied with pale brown:

Abdomen black, with two or four white spots at base.....7. **torvina.**

Abdomen black, with numerous lateral white spots.....8. **flavopicta.**

Abdomen reddish at base and sides, with numerous pale spots..9. **delira.**

Posterior femora with a broad, irregular, whitish band on the apical half; the abdomen reddish at base and sides, with six white spots.....10. **mendica.**

Posterior femora with a broad basal margin and dot at apex above, pale yellow; prothorax and scutellum each with two small yellowish spots; abdomen black.....11. **subobsoleta.**

Posterior femora with a short yellowish stripe above near apex and a dot beneath; abdomen mostly yellow, petiole black.....12. **Toluca.**

Posterior femora margined above and at base beneath with yellowish, and armed beneath with only six teeth: apical half of the abdomen yellowish.....13. **mexicana.**

Posterior femora pale fulvo-ferruginous, with three yellow spots at apex; abdomen pale sanguineous, with four pale yellowish spots at base.....14. **sanguineiventris.**

Markings of thorax large, white, yellow or reddish:

Posterior femora black, margined above and at base beneath with whitish, also a white spot beneath near apex:

Scutellum black, with two large ovate white spots; posterior tibiæ with a small pale spot on outer side near base.....15. **bioculata.**

Scutellum yellow, except extreme base and apex; posterior tibiæ with a broad yellow annulus.....16. **lecta.**

Posterior femora black, with basal margin beneath, a large spot at apex above, and a small spot near apex beneath, white; the posterior coxæ above and most of abdomen red; the scutellum mostly white.....19. **lauta.**

Posterior femora yellow, with a large, median black spot, generally confluent with a spot at apex; the scutellum almost entirely yellow; the abdomen fulvous, with a yellow subinterrupted median band.....17. **ambigua.**

Posterior femora yellow, with a large irregular black mark near middle and a small black spot on extreme tip; scutellum with two large yellow spots; abdomen black, with a median yellow band...18. **arcana.**

Posterior femora yellow, irregularly black at base and along inferior edge; the scutellum with a large, longitudinally ovate, black, central spot.....20. **Nortonii.**

Posterior femora yellow, with a slender, subfusiform, oblique, black stripe near apex; scutellum with a large, median, cuneiform, black spot; abdomen banded with yellow.....21. **coxalis.**

Posterior femora yellow, with a large central black spot, confluent with lower edge which is narrowly black to apex; scutellum with a central black stripe or basal spot:

Lower edge armed with six mostly large irregular teeth; protuberance beneath posterior wing black and yellow.....22. **bracata.**

Lower edge armed with twelve mostly small irregular teeth; protuberance beneath posterior wing entirely yellow.....Var. **coæqualis.**

Markings of body and legs bright deep orange-yellow; posterior femora with a small black spot beneath near base; scutellum divided centrally by a black stripe.....23. **encausta.**

Body ferruginous:

Petiole of abdomen short:

Abdomen ferruginous, immaculate; head, metathorax, posterior coxæ, tibiæ and petiole of abdomen black .....24. **barbara.**

Abdomen piceous-black, with two white spots; petiole pale yellowish; posterior coxæ ferruginous, with a large black spot..25. **scutellaris.**

Petiole of abdomen very long and slender:

Scutellum ferruginous, with a central black stripe, the lateral margin whitish.....26. **debilis.**

Scutellum yellowish-ferruginous, with a large dorsal black mark .....27. **petiolata.**

Body coccineous or scarlet:

Petiole of abdomen short:

Posterior femora with about five short distant teeth; four anterior legs red.....28. **Lanieri.**

Posterior femora with numerous minute teeth; the four anterior legs black.....29. **coccinea.**

Petiole of abdomen very long and slender; wings fuliginous, apical third subhyaline; posterior femora immaculate, with numerous minute teeth.....30. **coccinata.**

Body fiery yellowish-red or orange:

Wings dusky hyaline, darker towards base, the cubitus with a dark spot; scutellum with a black dot at tip; posterior coxæ with a black spot.....31. **flammeola.**

Wings uniformly fusco-hyaline; scutellum immaculate; posterior coxæ with a broad exterior black stripe.....32. **intermedia.**

Wings clear hyaline; scutellum and metathorax with a central black stripe; posterior coxæ with a black spot.....33. **ignea.**

Body lemon-yellow or luteous:

Petiole of abdomen nearly as long as posterior coxæ and slender; most of head, mesothorax, scutellum, wings except apex, and abdomen except base, black.....34. **miranda.**

Petiole of abdomen short, not more than half the length of posterior coxæ:

Posterior femora with four teeth:

Luteous; mesothorax reddish-brown, with two central luteous stripes; scutellum with a large triangular reddish-brown spot; posterior coxæ except base more or less sanguineous.....35. **Eubule.**

Lemon-yellow; disk of mesothorax black, immaculate; the flagellum black.....36. **dorsata.**

Lemon-yellow; disk of mesothorax black, with three or four quadrate yellow spots; flagellum fulvous.....37. **pulchra.**

Lemon-yellow; mesothorax with three black stripes; flagellum ferruginous.....38. **exornata.**

Posterior femora with six teeth; body luteous; three marks on mesothorax, large spot on scutellum, and breast, black..39. **compactilis.**

Posterior femora with numerous small teeth:

Wings blackish, with hyaline tips; body lemon-yellow; mesothorax lineate with black; posterior coxæ with broad black stripe above, their femora with two black spots.....40. **montezuma.**

Wings hyaline or subhyaline:

Posterior coxæ yellow, bilineate with black:

Luteous; posterior femora with two brown or black stripes on outer side, the lower one near base oblique; base of metathorax with two black spots.....41. **azteca.**

Lemon-yellow; posterior femora with a single, short, slender, oblique, black stripe on outer side near lower edge; base of metathorax black, a central apical black spot.....42. **conjungens.**

Posterior coxæ black within and a slender black stripe at base on outer side; mesothorax brown, with four yellow stripes; posterior femora yellow, with a broad central fulvous stain and a black apical spot.....43. **lenta.**

Posterior coxæ lemon-yellow, with broad stripe above; petiole of abdomen very short; abdomen long, subfusiform, narrowly banded with black.....44. **mariæ.**

Posterior coxæ luteous, with a dusky stripe on inner side; scutellum with a transverse black mark near tip; pleura with a broad oblique black stripe.....45. **tolteca.**

Posterior coxæ lemon-yellow, with a rounded black spot on outer side:

Metathorax with a transverse black spot at base...46. **nigropicta.**

Metathorax with a central elongate black spot.....47. **mirabilis.**

Posterior coxæ luteous, with apical half black; scutellum immaculate; posterior femora luteous, immaculate.....48. **Gundlachii.**

Posterior coxæ lemon-yellow, black at extreme tips, femora with two black spots on outer side, confluent on lower edge.....49. **juxta.**

Posterior coxæ yellowish, immaculate:

Pale luteous; thorax with small blackish markings... 50. **pallens.**

Pale lemon-yellow, immaculate; abdomen coccineous on apical half.....51. **delicata.**

Pale lemon-yellow, immaculate; abdomen tinged with rufo-testaceous .....52. **immaculata.**

1. **Smicra microgaster.**

Chalcis microgaster, Say, Long's Second Expedition, ii, p. 326.

Hab.—New York, Connecticut, Pennsylvania, The antennæ are long, robust, the scape more or less compressed at tip beneath; the four anterior legs more or less dull yellowish, the posterior femora not so much swollen as usual, sometimes brown and generally more or less tinged with reddish-yellow at base, the teeth are numerous and minute;

posterior tarsi pale; petiole slender, cylindrical, nearly as long as posterior coxæ and as long as the remainder of abdomen, which is small and subglobose, polished and black. Length .15 inch.

2. **Smicra canadensis,** n. sp.

♂.—Entirely black; face transversely rugose; clypeus smooth and polished, piceous; antennæ subrobust, scape cylindrical, not compressed beneath at tip; thorax densely and coarsely sculptured; apex of scutellum rounded; metathorax coarsely reticulated, with a central ridge furcate before apex; tegulæ piceous; wings hyaline, faintly dusky at tips; four anterior legs more or less varied with yellowish-brown; posterior femora entirely black, rather larger than in preceding species, the teeth numerous and minute; tarsi pale; abdomen entirely black, smooth and shining; petiole stout, shorter than remainder of abdomen and about two-thirds the length of posterior coxæ. Length .16 inch.

Hab.—Canada. Two specimens. Stouter than *microgaster*, with shorter antennæ, larger posterior femora and shorter, stouter petiole.

3. **Smicra albifrons.**

Chalcis albifrons, Walsh, Ins. Inj. Veg. Ill. p. 37, fig. 8.

Hab.—Illinois. This is the smallest species known to me, being only .08 inch long. It is easily distinguished by the large angular white mark on the face. The posterior femora have a whitish streak on the upper basal half of outer side.

4. **Smicra flebilis,** n. sp.

♂.—Black, clothed with pale pubescence; clypeus and mandibles reddish; antennæ long, black, scape piceous, compressed and carinate beneath at apex; thorax densely and confluently punctured, immaculate; scutellum subconvex, rounded and margined at apex; metathorax coarsely reticulated; tegulæ pale brown; wings slightly dusky, subiridescent; legs yellowish-ferruginous, coxæ, trochanters and base of four anterior femora black; posterior femora brown-black, orange-yellow at base, shading into pale yellow beneath, a pale yellow spot near tip and a smaller one above it, inner side pale orange-yellow with a brown mark on middle curving to apex above, teeth numerous and minute; posterior tibiæ black with a pale yellowish spot near base; abdomen subglobose, smooth and polished, piceous, reddish at base and sides, pubescent at apex, petiole black, stout, cylindrical, nearly as long as remainder of abdomen. Length .20 inch.

Hab.—Massachusetts. Two specimens. Resembles *microgaster* in form, but is larger, with posterior femora maculate with yellowish, and the abdomen mostly red.

5. **Smicra rufofemorata,** n. sp.

♂.—Dull black, head rugose, mandibles tinged with reddish; antennæ as long as head and thorax, scape compressed beneath; thorax immaculate, with dense coarse punctures; metathorax coarsely reticulated, pubescent; tegulæ piceous; wings fusco-hyaline; legs ferruginous, coxæ, trochanters, four anterior femora at base and beneath, and the four posterior tibiæ, black; posterior

femora not as large as usual, more or less stained with fuscous, the teeth very minute; posterior tarsi yellowish; abdomen small, subglobose, smooth and polished, ferruginous, dusky at apex, petiole stout, cylindrical, black, about two-thirds as long as posterior coxæ. Length .20 inch.

Hab.—Texas. (Belfrage.) Two specimens. Same form as *flebilis*, to which it is very closely allied, and may prove to be only a variety of it.

6. **Smicra delumbis,** n. sp.

♂ ♀.—Black; spot between antennæ, short line on anterior orbits, interrupted line behind eyes, and mandibles except tips yellowish-white; antennæ black, flagellum sericeous, apex sometimes pale; two whitish, approximate dots on lateral anterior margin of prothorax; two small distant spots on disk of mesothorax, wanting in ♀, and a dot on each side of scutellum, pale ferruginous; apex of scutellum rounded, margined, unarmed; tegulæ pale piceous; wings tinged with dusky, subiridescent; extreme base and apex of four anterior femora, base and apex of their tibiæ and within and their tarsi pale yellow; posterior trochanters luteous in ♂, their femora ovate, with a yellow dot on upper outer middle and a spot at tip above in ♀, teeth numerous and minute, their tibiæ with a pale yellowish spot near base and at apex, their tarsi white; abdomen small, about as large as posterior femora, subglobose, smooth and polished, black, immaculate, petiole stout, rather more than half the length of posterior coxæ. Length .15 inch.

Hab.—Massachusetts, Delaware. Two (♂ ♀) specimens. Much like *canadensis*.

7. **Smicra torvina,** n. sp.

♀.—Black, opaque; spot between antennæ, transverse spot beneath each posterior ocellus, spot on anterior orbits, narrow posterior orbits, and the large mandibles except tips, pale yellow; thorax densely rugulose; prothorax with four whitish dots on anterior margin—two on each side and two, approximate, above—and a reddish spot near each posterior angle; mesothorax with a short line on each side of middle lobe and two spots on posterior part of each lateral lobe, pale orange-yellow; scutellum with a rounded pale yellowish spot on each side, tegulæ pale yellow, fuscous posteriorly; wings hyaline; legs black, sericeous, tips of four anterior femora, their tibiæ at tips and within and all the tarsi except tips, yellowish-white; posterior coxæ entirely black; their femora black, inner side with a yellowish apical spot, outer side with a spot at base beneath, a spot at tip above and a transverse tortuous band near apex, pale yellowish, sometimes irregularly margined with brown, and interrupted into spots, femoral teeth minute; posterior tibiæ black, with a yellowish annulus at tip and another near base; abdomen subfusiform, smooth and polished, first segment with a whitish spot on each side between middle and apex, sometimes wanting and the second segment with a larger spot of same color on each side at base, sometimes the fifth segment has lateral pale spot; petiole robust, scarcely half the length of posterior coxæ. Length .15—.20 inch.

Hab.—Massachusetts, Connecticut, Illinois, Texas. Ten specimens. The markings on posterior femora vary considerably.

8. **Smicra flavopicta.**

Smicra flavopicta, Cress. Proc. Ent. Soc. Phil. iv. p. 99.

Hab.—Cuba. Very closely allied to *torvina;* the third, fourth and fifth abdominal segments have two yellow spots on each side, and the posterior femora are rather differently ornamented.

9. **Smicra delira,** n. sp.

♂.—Black; face prolonged beneath eyes; a large subrhomboidal spot between and beneath base of antennæ, a large spot beneath eyes, and mandibles except tips white; narrow posterior orbits continued upward over the summit of the eye and then transversely to lower ocellus, a dot behind each upper ocellus and a dot on anterior orbits, ferruginous; first joint of antennæ long, very robust, fulvous, with a black stripe at tip within; second joint elongate, about one-fourth the length of the first, fuscous; flagellum ferruginous, fuscous above, the joints very short and compact; thorax finely punctured: prothorax varied with ferruginous markings, the anterior margin with six yellowish spots; mesothorax with four yellowish spots on each side of disk; scutellum with a lateral yellowish stripe; tegulæ pale yellow, a ferruginous dot beneath; wings hyaline; legs honey-yellow, varied with pale yellow, coxæ and base of femora black; posterior femora marbled on apical half with ferruginous and yellowish-white, teeth very minute; posterior tibiæ pale yellowish at and base apex, dusky medially; tarsi pale; abdomen ovate, smooth and shining, ferruginous at base and apex, black on disk above, with a more or less distinct whitish spot on each side of the segments, large on second and on two or three apical segments; petiole short, black. Length .15 inch.

Hab.—Texas. (Belfrage.) In style of ornamentation this approaches very nearly to *torvina*, which is, however, larger and differently shaped, and the abdomen differently marked.

10. **Smicra mendica,** n. sp.

♂.—Black, varied with ferruginous and whitish; a white spot between base of antennæ; sides of face, orbits, confluent with a line that curves around the posterior ocelli and terminates on occiput, and mandibles except tips, yellowish ferruginous; scape black, ferruginous laterally, (flagellum broken off); prothorax ferruginous above, with four small yellowish spots on anterior margin; mesothorax sparsely and finely punctured, black, side pieces ferruginous, a spot on each side of anterior middle, and a spot in front of tegulæ, whitish; scutellum flat, sparsely punctured, shining, narrowly margined with pale ferruginous, with a white transverse mesial band interrupted on the disk; narrow space immediately beneath wings pale ferruginous; tegulæ pale piceous; wings hyaline, iridescent; four anterior legs honey-yellow, tarsi pale, coxæ and base of femora blackish; posterior coxæ black, their extreme tips and trochanters honey-yellow; posterior femora much swollen, ovate, outer side with basal half black, tinged beneath with brown, and with a white spot over basal tooth, apical half irregularly white, interrupted beneath and at tip with brown and by a double black spot on upper margin near apex, on inner side black, margined above with ferruginous and with a whitish spot at tip, the teeth numerous and minute; posterior tibiæ brownish behind, with a whitish spot near base and another near apex; tarsi pale yellowish; abdomen rather larger than pos-

terior femora, smooth and polished, short ovate, ferruginous, piceous above, two spots on middle of first segment, two on base of second segment and two on apex, white; petiole short, stout, black. Length .20 inch.

Hab.—Mexico. (Prof. Sumichrast.) One specimen. Larger than *delira* which it somewhat resembles, but may be readily distinguished by the posterior femora being broadly tipped with whitish.

11. **Smicra subobsoleta,** n. sp.

♂.—Black, opaque; face, broad anterior orbits not reaching summit of eyes, narrow posterior orbits, clypeus, labrum, and mandibles except tips, lemon-yellow; antennæ black above, ferruginous at tips and beneath, scape yellow beneath, flagellum short, thick, with transverse joints; thorax with dense dilated punctures, a spot on each side of prothorax above, tegulæ and a spot on each side of scutellum, pale yellow; four anterior legs lemon-yellow, the coxæ, a stripe on their femora behind, and a short slender stripe on their tibiæ, black; posterior legs black; their trochanters beneath, a spot at tip of their femora above, a large spot at base, extending on upper edge nearly half way to apex, and a dot on middle of inner side, lemon-yellow; their tibiæ with a subobsolete yellowish spot near base, their tarsi pale honey-yellow, terminal joint black: femoral teeth minute; abdomen small, not larger than posterior femora, subglobose, smooth and polished, piceous, immaculate, petiole stout, about half the length of posterior coxæ. Length .20 inch.

Hab.—Texas. (Belfrage.) One specimen.

12. **Smicra Toluca,** n. sp.

♀.—Black, clothed with pale pubescence; sides of face, extending broadly half-way up orbit of eye, and narrow posterior orbits, lemon-yellow; antennæ black, scape slender, brown, yellow beneath; thorax broad, robust, with dense dilated punctures; narrow posterior margin of prothorax, the short lateral carina on anterior margin, two oblique stripes on middle of mesothorax, converging behind, a transverse spot over tegulæ, and two oblique spots on posterior margin of scutellum, confluent on the bilobate, acutely and rather broadly margined apex, lemon-yellow; metathorax coarsely reticulated; tegulæ brown, with a yellow central dot; wings hyaline, tinged with yellowish; legs polished black, four anterior knees, stripe on their tibiæ within and their tarsi more or less, yellowish; posterior femora with a narrow interrupted stripe above and a small spot beneath towards tip on outer side and a stripe above and two spots beneath on inner side, yellowish, lower edge with eight or ten teeth, which are larger than usual; abdomen ovate, smooth and shining, yellow, banded with reddish, on first segment with piceous which is broadly dilated beneath; petiole short, stout, black. Length .28 inch.

Hab.—Mexico. (Prof. Sumichrast.) One specimen.

13. **Smicra mexicana,** n. sp.

♀.—Black, clothed with short pale yellowish pubescence, longer and whitish on metathorax; narrow, subinterrupted orbits, scape beneath, narrow posterior margin of prothorax, spot on each posterior angle of mesothorax, and two transverse spots on scutellum yellow; antennæ black, scape slender, brown above; thorax broad, robust, densely punctured; scutellum large, subconvex, apical marginal carina interrupted medially; tegulæ piceous; wings faintly yellowish, narrowly fuscous on costa; legs shining black; tips of four anterior femora within, anterior tibiæ within, broad stripe on posterior coxæ beneath, not

reaching base, a continuous stripe on their femora above, a short, broad stripe at base beneath, a small spot beneath near apex, transverse band on inner side near apex (which is ferruginous), and a short stripe on their tibiæ on each side near apex, yellow; posterior femora with four large blunt teeth and two small ones, sometimes obsolete, towards base; abdomen shining, black, pointed at apex, a band on second, and the following segments more or less yellow; petiole short, stout, black. Length .35 inch.

♂.—Face spotted with yellow; posterior coxæ with a short slender yellow stripe on each side near apex; abdomen smaller, the band on the second and the following segments orange-yellow; otherwise like ♀. Length .30 inch.

Hab.—Mexico. (Prof. Sumichrast.) Five ♂ ♀ specimens. An easily recognised species. Differs from *Toluca* by the yellow margined posterior femora and the paucity of the teeth.

14. **Smicra sanguiniventris,** n. sp.

♀.—Black, head and thorax marked as in *delira*; antennæ slender, blackish, fulvous beneath; tegulæ whitish; wings faintly dusky; four anterior legs pale honey-yellow; posterior coxæ black, ferruginous at tips and beneath; their femora fulvo-ferruginous, with several irregular yellowish marks at tip and a spot on basal tooth; on inner side a short black line, the teeth numerous, minute and black; posterior tibiæ fulvous, with apex and spot near base, yellow; tarsi pale; abdomen subfusiform, smooth and polished, pale coccineous, with four yellow spots near base; petiole robust, about half the length of posterior coxæ, dull ferruginous. Length .18 inch.

Hab.—Texas. (Belfrage.) One specimen. Readily distinguished from *delira*, which it resembles in the ornamentation of head and thorax, by the pale sanguineous abdomen and differently colored posterior femora.

15. **Smicra bioculata,** n. sp.

♂.—Black, opaque; face, broad anterior orbits not reaching summit of eyes, narrow posterior orbits, two dots beneath lower ocellus, clypeus, labrum, and mandibles except tips, lemon-yellow; antennæ black above, ferruginous beneath, scape with a pale stripe beneath; thorax with dense dilated punctures; a large spot on each side of prothorax above, two oblique dots on disk of mesothorax, two large ovate spots on scutellum and the tegulæ, lemon-yellow; wings hyaline; four anterior legs lemon-yellow, their coxæ, trochanters and base of femora behind black, their femora honey-yellow in front; posterior legs black, upper edge of their femora, sometimes broadly interrupted about the middle, leaving only a spot at apex, and a stripe at base beneath, sometimes nearly contiguous with a spot near apex, lemon-yellow; a yellow spot near base of tibiæ, their tarsi honey-yellow; femoral teeth minute; abdomen small, not larger than posterior femora, subglobose, smooth and polished, piceous, shading into ferruginous at base, petiole stout, about half the length of posterior coxæ. Length .20—.23 inch.

Var. **faceta,** ♂.—Pale markings white; posterior femora broadly margined above at base and beneath nearly to apex; abdomen entirely ferruginous. Length .18 inch.

Hab.—Texas. (Belfrage.) Three specimens.

16. **Smicra lecta,** n. sp.

♂ ♀.—Black; face, mouth, broad anterior orbits not reaching summit of eyes, posterior orbits dilated beneath, and scape beneath, lemon-yellow; flagellum beneath and at tip fulvous; thorax densely punctured, pubescent; prothorax yellow above, interrupted medially and posteriorly by a black spot on each side, lateral anterior margin also yellow; mesothorax with two short, oblique, yellow lines; scutellum large, prominent, convex, lemon-yellow, basal and apical margins narrowly black, sometimes a small black spot on basal middle; tegulæ lemon-yellow; wings faintly dusky, iridescent; four anterior legs, including their coxæ, lemon-yellow, anterior femora with a black spot at base behind; posterior coxæ with a broad yellow stripe beneath; their femora with upper edge, not reaching apex, and basal half beneath, broadly lemon-yellow, also a small spot on lower edge between middle and apex, on inner side the upper edge, the extreme base and a large subapical spot, also lemon-yellow, teeth numerous and minute; posterior tibiæ yellow, black at base and apex: tibiæ yellow; abdomen small, smooth, shining, dark ferruginous, immaculate, piceous towards apex above; petiole short, black. Length .20—.23 inch.

Hab.—Mexico. (Prof. Sumichrast.) Two specimens.

17. **Smicra ambigua,** n. sp.

♂.—Black, pubescent; head lemon-yellow, vertex and occiput black: flagellum fulvous beneath and at tip, scape yellow beneath; prothorax yellow with a large black spot in front; mesothorax with two broad oblique stripes on disk and lateral margins, yellow; scutellum large, prominent, convex, yellow; a small spot on basal middle and a short band on apical margin, black; pleura with two spots beneath wings, that beneath tegulæ small; tegulæ pale yellow; wings tinged with dusky, pale at apex; legs lemon-yellow; posterior coxæ black, yellow beneath, their femora on each side with a large irregular black spot on disk and another at apex, sometimes confluent, the teeth numerous, minute and black; posterior tibiæ broadly black at base and apex; abdomen small, sub-globose, fulvo-ferruginous, sometimes darker on apical half, with a stain on each side of first segment and a band or two spots on base of second segment, pale yellow; petiole short, not half the length of posterior coxæ, black, more or less pale at base. Length .20—.25 inch.

Hab.—Mexico. (Prof. Sumichrast.) Five specimens. Closely allied to *lecta* and may prove to be a variety of that species. This seems also to approach *abdominalis*, Walk., which however is said to have the petiole long and the abdomen piceous.

18. **Smicra arcana,** n. sp.

♂.—Robust, black; head yellow, large spot or vertex enclosing ocelli, occiput, clypeus, dot beneath eyes and tips of mandibles black; antennæ black, scape yellow beneath; large mark on each side of prothorax, two oblique spots on middle of mesothorax, two large spots on scutellum, postscutellum and tegulæ, yellow; thorax densely and confluently punctured: wings hyaline: four anterior legs yellow, their coxæ, trochanters and base of femora black: posterior coxæ black with a pale yellow spot beneath; their femora large, yellow on outer side, with a large irregular, submedian black band not reaching upper edge but curving to base which it attains by a narrow line, apex with a black spot, inner side blackish, with upper margin and a broad band near apex,

yellow, teeth numerous and minute; posterior tibiæ yellow, brownish near base; abdomen shining, piceous-black, with an abbreviated yellow band at base of second segment; petiole short, stout, black. Length .20 inch.

Hab —Delaware. One specimen.

19. **Smicra lauta,** n. sp.

♀.—Black; head white, lower margin of face brownish; a spot on middle of front, spot covering ocelli, confluent with occiput, and tips of mandibles black; antennæ black, scape white beneath; thorax with rather sparse, not deep, punctures, shining; posterior margin of prothorax dilated laterally, four longitudinal stripes on mesothorax, scutellum except base and apex, and the tegulæ, white; scutellum large, rounded at tips, depressed centrally; wings tinged with dusky; four anterior legs white; posterior coxæ black beneath, dark red above, their femora black, with a large irregular spot above at tip, a small rounded spot beneath and an elongate spot at base beneath, white, inner side reddish with two whitish spots near tip which is black, teeth numerous and small; posterior tibiæ dull ferruginous, their tarsi whitish; abdomen smooth and polished, pointed at tip, rufo-piceous; petiole very short and stout, yellowish-ferruginous. Length .25 inch.

Hab.—Mexico. (Prof. Sumichrast.) One specimen. A very handsome and distinct species.

20. **Smicra Nortonii,** n. sp.

♂.—Head lemon-yellow, space behind antennæ, vertex except a short line before each posterior ocellus, occiput, a small oblique spot beneath base of each antenna, lower margin of cheeks narrowly and tips of mandibles, black; scape black above, yellow beneath, (flagellum wanting); thorax broad, robust, with large, dense, coarse punctures; prothorax yellow; mesothorax black, with four narrow yellow stripes, the two central ones oblique, converging and abbreviated behind, almost contiguous; scutellum yellow, with a large longitudinally ovate black discal spot; metathorax black with apex yellow; pleura black, a spot beneath wings and the large prominent convex swelling behind, yellow; tegulæ pale yellow, pupilled with brown; wings yellow-hyaline; legs lemon-yellow, posterior coxæ with a broad black stripe above and beneath, not reach-apex; their trochanters black; their femora large, oblong, irregularly black at base, as well as the inferior margin which has about ten irregular teeth, on inner side the base is obliquely black and with a short oblique central band abbreviated above; their tibiæ pale fuscous at the extreme base; abdomen banded alternately with black and yellow, the first segment with two blackish spots at base; petiole short, reddish-brown, yellow above. Length .35 inch.

Hab.—District of Columbia. (Coll. Mr. E. Norton.) One specimen. This fine species, which at first sight closely resembles the three following, may be distinguished at once by the yellow posterior femora being black only at base on outer side.

21. **Smicra coxalis,** n. sp.

♂.—Black, profusely marked with lemon-yellow; face transversely rugose, lemon-yellow, with two approximate blackish marks above clypeus; space behind antennæ covering vertex and occiput black; scape lemon-yellow beneath;

prothorax lemon-yellow, a large transverse spot on anterior middle and a spot on each posterior corner, black; mesothorax densely and coarsely punctured, black, with four yellow stripes, those on disk oblique, converging and abbreviated behind; scutellum yellow, with a large, broad cuneiform, discal black mark; metathorax yellow, black on basal margin; pleura black, with a slender yellow line on anterior margin, the prominent convex swelling beneath posterior wings entirely yellow; tegulæ pale luteous; wings yellowish-hyaline; legs lemon-yellow; posterior coxæ very long, attenuate at tips, black beneath, with two black stripes above, the outer one abbreviated at base; their femora with an oblique black stripe on each side near base, and the extreme tips black especially on inner side; their tibiæ dusky at base; abdomen subcompressed, smooth and shining, subpubescent, black, first segment except apical margin, and broad band at base of second and third segments, yellow; petiole short, black. Length .30 inch.

Hab.—Delaware. One specimen. Easily recognised by the conspicuous oblique black stripe on posterior femora near base.

22. **Smicra bracata.**

Chalcis bracata, Sanborn, Rep. Sec. Mass. Bd. Agric. Jan. 1863, p. 172, fig. 46.

Hab.—Conn., Penn., D. C. Three specimens. Closely allied to *Nortonii*, differing principally as follows:—Scutellum with a large, longitudinal ovate black spot; metathorax black, except spines which are yellow; protuberance beneath posterior wings black and yellow; posterior coxæ entirely black except a yellow spot at base of outer side; posterior femora with a large discal black spot on outer side and black on inner side with a yellow spot at base and another near apex; lower edge with four large and two to four very small teeth; posterior tibiæ black at base. Length .28—.35 inch.

Var. COÆQUALIS.—♂.—Differs only by the femora having twelve mostly small irregular teeth, entirely different from those of *bracata*, and by the protuberance beneath posterior wing being entirely yellow. Length .23—.28 inch.

Hab.—Massachusetts, Delaware. Two specimens.

This may be the *nigricornis*, of Fabr., or the *maculata*, of Fabr., although of the latter Walker (*Entomologist*, p. 218,) says "scutellum apice bicornutum; trochanteres flavi," while in *bracata* the scutellum is broadly rounded at apex and unarmed, and the trochanters are black. In other respects there appears to be nothing to separate them.

23. **Smicra encausta**, n. sp.

♂.—Robust, black; head orange-yellow, middle of the front behind antennæ confluent with a transverse mark on vertex enclosing ocelli, which is confluent with posterior margin of head, black; antennæ short, robust, black, scape with a yellow stripe beneath; thorax short, broad, with rather large dilated punctures; prothorax orange-yellow with a large black mark on anterior middle;

two oblique marks on disk of mesothorax, narrow lateral margin, and the scutellum except a slender dorsal depressed stripe, also orange-yellow; pleura entirely black; tegulæ pale yellow, brown posteriorly; wings dusky, pale at apex; legs orange-yellow, four anterior coxæ, trochanters and extreme base of their femora, black; posterior coxæ short, black, a large spot, furcate anteriorly, beneath at tip and a smaller one near base within, yellow; their trochanters black; their femora large, almost circular, with a small black spot on lower middle of outer side and another at extreme tip on both sides, teeth numerous, minute and black; their tibiæ blackish, with a narrow orange-yellow band near base and apex; their tarsi yellowish; abdomen as large as posterior femora, compressed, shining, black, a spot on each side of first segment at base and a narrow band at base of second segment, orange-yellow; petiole short, stout, black. Length .20 inch.

Hab.—Colorado. One specimen. This truly lovely species may be easily recognised by the beautiful bright orange markings in contrast with the deep black color of the body, and by the large nearly circular posterior femora being almost entirely orange-yellow.

24. **Smicra barbara,** n. sp.

♂.—Same form and sculpture as *rufofemorata;* ferruginous; head fuscous, sides of face ferruginous; antennæ slender, black, scape sometimes tinged with reddish; pleura, metathorax and tegulæ more or less black; wings fusco-hyaline: coxæ, except sometimes posterior pair above, base of anterior femora, and four posterior tibiæ, black; posterior femora almost sanguineous, immaculate, with minute black teeth; posterior tarsi fulvous; abdomen as in *rufofemorata;* petiole shorter, fuscous. Length .20—.25 inch.

Hab.—Texas. (Belfrage.) Three specimens.

25. **Smicra scutellaris.**

Smicra scutellaris, Cress. Proc. Ent. Soc. Phil. iv, p. 98. Jan. 1865.

Hab.—Cuba. (Coll. Dr. Gundlach.) One specimen. This is dull ferruginous, with antennæ, most of pleura, large spot on posterior coxæ, part of femora and tibiæ and most of abdomen black; sides of face, whole of scutellum, tips of posterior coxæ, spots on their femora and tibiæ and a spot on each side of abdomen above, pale yellowish. Length .23 inch.

26. **Smicra debilis.**

Chalcis debilis, Say, Bost. Jour. Nat. Hist. i, p. 271.

Hab.—Delaware, "Indiana," Illinois. This is a small slender species, of a ferruginous color, varied with pale and black markings; the petiole of abdomen is very long and slender. Length .15 inch.

27. **Smicra petiolata.**

Smicra petiolata, Cress. Proc. Ent. Soc. Phil. iv, p. 97.

Hab.—Cuba. (Coll. Dr. Gundlach.) One specimen. Closely allied to *debilis,* Say. The petiole is twice the length of the remainder of abdomen, and very slender. Length .15 inch.

28. **Smiera Lanieri.**

Chalcis Lanieri, Guér. Icon. Rég. Anim. iii, p. 412, pl. 67, fig. 4.

Hab.—Cuba. Two ♂ ♀ specimens. A large bright scarlet or coccineous species, with head above and behind, antennæ, most of mesothorax, a broad stripe on posterior coxæ above, a single spot or streak near base of their tibiæ, black; wings uniformly dark fuscous; the femoral teeth five in number, distant and irregular; metathoracic spines prominent; abdomen immaculate, petiole short and stout. Length .35 inch.

29. **Smiera coccinea.**

Smiera coccinea, Cress. Proc. Ent. Soc. Phil. iv, p. 91.

Hab.—Cuba. (Coll. Dr. Gundlach.) One specimen. This is allied to *Lanieri*, but is at once distinguished by the thorax, posterior coxæ, femora and tibiæ being entirely coccineous, and the four anterior legs black. Length .25 inch.

30 **Smiera coccinata,** n. sp.

♂.—Coccineous; head yellowish, vertex, occiput and two spots on face, black: antennæ black, scape compressed, with a yellowish carina beneath near apex: thorax coarsely transversely wrinkled, a spot on each side of prothorax above, two short broad stripes on disk of mesothorax, a spot on each side over wings and two rounded spots on base of scutellum, black; scutellum coarsely transversely wrinkled, convex, apex with two prominent compressed rounded processes; metathorax coarsely reticulated; tegulæ dull luteous; wings blackish fuscous, apical third subhyaline; legs bright coccineous, two anterior pairs paler, with tibiæ and tarsi tinged with yellowish; posterior trochanters and row of numerous minute femoral teeth black; tarsi yellow; abdomen small, globose, smooth and polished, petiole as long as remainder of abdomen, slender, whitish. Length .27 inch.

Hab.—Mexico. (Prof. Sumichrast.) One specimen.

31. **Smiera flammeola,** n. sp.

♂ ♀.—Fiery reddish-yellow; head yellow, vertex and occiput tinged with reddish-yellow; antennæ black, scape yellow beneath; prothorax strongly tinged with yellow: mesothorax transversely rugulose, clothed with short erect black pubescence, the anterior, posterior and dorsal sutures and a slender black median stripe, sometimes abbreviated, black; scutellum with erect black pubescence, and a central dusky stripe, apex rounded, margined, ♂ with a central black dot at tip; mesothorax coarsely reticulated, tinged with yellowish: base sometimes narrowly black; pleura tinged with yellow and with two black oblique stripes on each side, sometimes reduced to spots near base of four anterior coxæ; tegulæ pale yellowish; wings dusky hyaline, pale at tips, a slight dusky cloud beneath tip of humerus and a small blackish spot covering the cubitus; four anterior legs lemon-yellow; posterior legs fiery orange-yellow, smooth and polished; the coxæ more or less black within, and in ♂ a black dot on outer side near base, in ♀ this is indicated merely by a dusky stain; trochanters of ♂ black; femora of ♀ with a dusky stain on outer middle, the

teeth numerous, small and black; tarsi pale orange-yellow; abdomen long, fusiform, acuminate at tip in ♀, short, ovate in ♂; petiole short, stout. Length .26—.36 inch.

Hab.—Mexico. (Prof. Sumichrast.) Five ♂ ♀ specimens.

32. **Smiera intermedia.**

Smiera intermedia, Cress. Proc. Ent. Soc. Phil. iv, p. 92.

Hab.—Cuba. (Coll. Dr. Gundlach.) One specimen. Yellowish-ferruginous; abdomen scarlet; vertex, occiput, cheeks, antennæ, tegulæ, four anterior legs, posterior coxæ above and their tibiæ and tarsi, black; wings fusco-hyaline. Length .25 inch.

33. **Smiera ignea.**

Smiera ignea, Cress. Proc. Ent. Soc. Phil. iv, p. 92.

Hab.—Texas; Cuba. Reddish-orange; flagellum, central stripe on mesothorax, a small spot on each side of it, as well as the anterior and posterior margins, a central spot on posterior coxæ above and the extreme tip of abdomen, black; wings hyaline; abdomen elongate, acuminate and pointed; petiole short, pale yellow. Length .25 inch.

34. **Smiera miranda**, n. sp.

♂.—Pale lemon-yellow; head black, a short line on anterior orbits, cheeks, and mandibles yellow; antennæ black, scape dull yellowish, compressed and carinate beneath near apex; mesothorax transversely wrinkled, black, as well as scutellum except apex, which is bituberculate as in *coccinata*; tegulæ pale luteous; wings blackish, apical third hyaline; extreme tips of posterior coxæ, their trochanters, the numerous, minute femoral teeth, and tips of their tibiæ black; abdomen black, smooth and polished, subglobose, yellowish at base; petiole long, slender, nearly as long as posterior coxæ, lemon-yellow. Length .30 inch.

Hab.—Mexico. (Prof. Sumichrast.) One specimen. This beautiful species is shaped and sculptured precisely like *coccinata*, and may prove to be the ♂ of *Lamyrus*, Walker.

35. **Smiera Eubule.**

Smiera Eubule, Poey MS.—Cress. Proc. Ent. Soc. Phil. iv, p. 93.

Hab.—Cuba. Four specimens. Luteous; vertex, antennæ, spot on each side of prothorax, most of mesothorax, large triangular spot on scutellum, apical half of posterior coxæ and spots on their femora, dull ferruginous; scutellum and metathorax each with two acute spines; posterior femora armed beneath with four large teeth, the basal one very stout; wings subhyaline; sometimes the prothorax above, the mesothorax and scutellum are entirely brownish and the posterior coxæ rufous except extreme base. Length .35 inch. This species destroys the larvæ of *Callidryas Eubule*.

36. **Smiera dorsata**, n. sp.

♀.—Bright lemon-yellow; space behind antennæ, vertex, occiput, scape behind, flagellum, spot on disk of prothorax, mesothorax except broad lateral mar-

gin, large triangular spot at base of scutellum, metathorax except large mark beneath posterior wing, and a large irregular, crenulated depression on pleura, black; thorax with dense coarse punctures, clothed with a rather long pale pubescence; wings hyaline; tips of posterior coxæ, their trochanters, three spots on outer side of their femora—one on middle of upper margin, one at tip and a larger one on middle of lower margin, extending to inner side—and base of their tibiæ, black; femoral teeth four in number, the two middle ones long, acute, black, the others blunt and tipped with black; tips of tarsi dusky; abdomen small, subcompressed, smooth and polished, stained with ferruginous at base, the segments above banded with black; petiole bright yellow, slender, more than half the length of posterior coxæ. Length .25 inch.

Hab.—Texas. (Belfrage.) This may prove to be only a variety of *pulchra*.

37. **Smiera pulchra.**

Smiera pulchra, Cress. Proc. Ent. Soc. Phil. iv, p. 94.

Hab.—Mexico; Cuba. Five specimens. This species is lemon-yellow; antennæ brown-ferruginous; spot on vertex, occiput, disk of prothorax, large mark on mesothorax enclosing three or four yellow spots, most of pleura and metathorax, tips of posterior coxæ, three spots on their femora, base of their tibiæ and bands on disk of abdomen, black; wings subhyaline; scutellum and metathorax each with two stout acute teeth; posterior femora armed beneath with four large acute black teeth, the two middle ones the longest and directed backwards. A specimen from Mexico has a broad central black stripe on scutellum. Length .20—.25 inch.

38. **Smiera exornata,** n. sp.

♂.—Lemon-yellow; back part of head, three more or less dilated stripes on mesothorax, a transverse band in front, another on posterior margin, a slender central stripe on scutellum, generally ending in a broad triangular mark at apex, and an oblique line on pleura, black; antennæ blackish above, fulvous beneath, scape yellow; scutellum bilobate behind; wings hyaline; tips of posterior coxæ, their trochanters, a short stripe on upper edge of their femora, a spot at tips, a round spot on lower edge between middle and apex, the four long acute oblique teeth, three spots on inner side, and extreme base and apex of their tibiæ, black; their femora more elongate than usual, not so much swollen; abdomen banded with black above; petiole short, yellow. Length .22—.25 inch.

Hab.—Mexico. (Prof. Sumichrast.) Four specimens.

39. **Smiera compactilis,** n. sp.

♀.—Dull luteous; depressed space behind antennæ, back of head, a large mark on disk of mesothorax, a narrow longitudinal mark on each side, none of which extend to posterior margin, a broad, transverse mark on disk of scutellum and most of the pleura, black; antennæ ——; thorax broad, densely coarsely punctured; scutellum large, bituberculate behind; wings dusky, especially along costa; legs entirely luteous, posterior femora large, much swollen, armed beneath with four large teeth tipped with black; abdomen pale yellow at base

and apex, varied with dusky on dorsal middle; petiole short, stout. Length .30 inch.

Hab.—Mexico. (Prof. Sumichrast.) One specimen.

40. **Smiera montezuma,** n. sp.

♂.—Lemon-yellow; spot on middle of front, a band on back of head, antennæ, except scape beneath, spot on anterior middle of prothorax, a large mark on anterior middle of mesothorax enclosing a yellow spot, a stripe on each side connected behind by a narrow sutural line, a dot on basal middle of scutellum and a sutural line on pleura, black; scutellum rounded and margined at apex; metathorax with a prominent subacute lateral spine; wings blackish, apical third subhyaline; extreme tips of posterior coxæ, a broad line above not reaching base, their trochanters, a spot on tips of their femora, a spot near lower edge between base and apex, the minute teeth and extreme base of their tibiæ, black; abdomen pale fulvous, with base and band at base of second segment yellow; petiole short, stout. Length 30 inch.

Hab.—Mexico. (Prof. Sumichrast.) Two specimens.

41. **Smiera azteca.** n. sp.

♂.—Luteous-yellow, head and thorax beneath lemon-yellow; the excavation behind antennæ, dot on each posterior ocellus and back of head, black; flagellum ferruginous, scape yellow; a dot on anterior middle of prothorax, a spot or short line on each side above, sometimes wanting, four lines on mesothorax, the central two converging behind where they unite and reach the basal margin in one line, a central stripe on scutellum and sometimes the sutures of pleura, black; thorax densely punctured; scutellum rounded and margined at apex; metathorax coarsely reticulated; wings yellow-hyaline, paler at tips; four anterior legs entirely lemon-yellow; posterior pair luteous, their coxæ with two black stripes the upper one generally much broader and longer than the outer; posterior femora large, both sides with a stripe above and an oblique stripe towards base beneath, black, sometimes those on outside are pale brown and sometimes nearly obsolete; the teeth numerous, minute and black; posterior tibiæ brown at base; abdomen yellow, bands with fuscous or dull fulvous; petiole short, stout, with a lateral black spot on stripe. Length .30—.40 inch.

Hab.—Mexico. (Prof. Sumichrast.) Five specimens.

42. **Smiera conjungens.**

Smiera conjungens, Walker, Notes on Chalcidiæ, iii, p. 53, ♂.

Hab.—Mexico. (Prof. Sumichrast.) Three ♂ specimens. This fine species is yellow, with head behind, space behind antennæ, two dots including the two posterior ocelli, a band on prothorax in front, a short streak on each side, three stripes on mesothorax, the middle one very broad and dilated in front, all connected on hind border, a central stripe on scutellum, basal margin of metathorax, a dilated spot on apical middle, a short oblique line on each side within lateral swelling, and two oblique stripes on pleura, all black; scutellum rounded at apex and unarmed; wings yellow-hyaline, faintly dusky at tips; posterior coxæ with a broad black stripe within and a very slender one on outer side, sometimes indistinct; posterior femora on inner side with two black stripes, the upper one emitting two black bands, one on middle

angular, and the other at tip, outer side with lower edge and a short oblique streak below the middle, black, the teeth small, irregular, tipped with black; posterior tibiæ with a blackish streak behind, not reaching apex; abdomen with broad black bands, first segment with two large black spots at base; petiole about two-thirds the length of posterior coxæ, black at tip. Length .35 inch. This is a near ally to *azteca*, but the posterior legs are differently marked.

43. **Smicra lenta.** n. sp.

♂.—Head lemon-yellow, vertex tinged with fulvous, as well as back of head, the posterior margin of which is black; antennæ fulvous, paler at tips, scape yellow beneath; prothorax fulvous, varied with yellow, a black spot on each side beneath lateral angle; mesothorax brown, with four yellow lines, two on each side, approximate, and all connected with the yellow posterior margin; scutellum yellow, with a large rounded, central, reddish-brown spot, the apex produced, subbilobate, blackish; metathorax coarsely reticulated, black, with a broad basal yellow band; pleura black, with two yellow spots beneath tegulæ, which is yellow, pupilled with brown; wings yellow-hyaline, apex clear hyaline; legs lemon-yellow; posterior coxæ fulvous above, black within, with a short slender blackish line on outer side, distinct at base and gradually fading towards apex; posterior femora lemon-yellow, with a broad mediau fulvous band, irregular in outline and dilated on upper edge, a black spot on extreme tips, inner side blackish, two spots near apex and lower margin yellow, the teeth numerous, small, black; posterior tibiæ yellow, varied with fulvous; abdomen pale yellow, varied with fulvous before apex; petiole very short, stout, yellow. Length .22 inch.

Hab.—Mexico. (Prof. Sumichrast.) One specimen.

44. **Smicra mariæ.**

Chalcis mariæ, Riley, Fourth Annual Report, Nox. Ins. Mo. p. 109, fig. 39. ♂ ♀.

Hab.—N. Y., D. C., Ky., La. Eight ♂ ♀ specimens examined. This pretty little species has been bred from the cocoons of *Attacus Polyphemus* and *Promethea*. It may be recognised by the following characters:—Lemon-yellow; head with an arcuate black mark behind antennæ, connected with a short longitudinal line to lower ocellus and then to back of head which is margined with black; antennæ black or brown, scape yellow beneath; a spot on anterior middle of prothorax, three stripes on mesothorax, connected before and behind by the sutural line, a spot on each side over tegulæ, a central stripe on scutellum, basal and lateral margins of metathorax, a spot on apical middle and two oblique stripes on each side of pleura, all black; mesothorax with the central black line depressed and transversely striated; wings hyaline; a broad stripe on outer side of posterior coxæ, their extreme tips, their trochanters, the minutely dentate edge of their femora and six narrow bands on abdomen, black; petiole very short in ♀, longer in ♂, tipped with black; abdomen of ♀ long, fusiform, acuminate at apex, of ♂ short, ovate. Length .15—.25 inch.

45. **Smiera tolteca,** n. sp.

♀.—Dull luteous, slightly tinged with orange; excavation behind antennæ, and posterior margin of head, black; flagellum blackish, fulvous at tips, scape yellow; mesothorax tinged with pale fulvous, with a sutural line each side, a short bidentate band in front, an angular spot on disk (connected with the bidentate band by a pale fulvous line), sutural line at base, a transverse spot near apex of scutellum, and most of pleura, black; apex of scutellum broadly, acutely margined, slightly emarginate at middle; metathorax coarsely reticulate, with a short black line between it and the large lateral swelling; wings yellowish-hyaline; legs luteous-yellow, posterior pair darker, their coxæ with a dusky stripe within and a faint fulvous stain on outer side; posterior femora varied with fuscous within, the teeth numerous, small and black; their tibiæ dusky at base; abdomen elongate, fusiform, acuminate at tip, tinged with fulvous, base of first segment, and band at base of second, yellowish; petiole short, yellowish. Length .30 inch.

Hab.—Mexico. (Prof. Sumichrast.) One specimen. In some specimens the mesothorax will doubtless be ornamented as in *montezuma*.

46. **Smiera nigropicta.**

Smiera nigropicta, Cress. Proc. Ent. Soc. Phil. iv, p. 95.

Hab.—Cuba. Ten ♂ ♀ specimens. Lemon-yellow; antennæ, anterior and posterior margins of, and three longitudinal marks on mesothorax, anterior suture of pleura, spot on scutellum, a transverse black mark at base of metathorax, large spot on posterior coxæ, tips of their tibiæ, and dorsal bands on the abdomen, black; wings hyaline; femoral teeth numerous, small and black; scutellum unarmed. Length .20—.30 inch.

47. **Smiera mirabilis,** n. sp.

♂.—Lemon-yellow; spot between ocelli, posterior margin of occiput, antennæ above, spot on middle of prothorax, three stripes on mesothorax—the central one confluent with a transverse band on anterior margin and also with a band dilated laterally, before scutellum—an elongate cuneiform mark on disk of scutellum, a large elongate quadrate spot on middle of metathorax, a mark beneath anterior coxæ, spot on each side of pleura, and a large spot on posterior coxæ above, all black; thorax with large dense punctures and with sparse, erect black pubescence; wings hyaline; a spot on extreme tips of posterior femora covering also base of their tibiæ, pale fuscous; femoral teeth numerous and minute; abdomen small, not larger than posterior femora, subcompressed, honey-yellow, second and following segments each with a transverse dorsal black spot; petiole short, lemon-yellow. Length .22 inch.

Hab.—Georgia (Blake); Texas (Belfrage). Four ♂ specimens. Closely allied to *nigropicta*, from which it may be distinguished by the black mark on metathorax being longitudinal instead of transverse, as in that species.

48. **Smicra Gundlachii.**

Smicra Gundlachii, Cress. Proc. Ent. Soc. Phil. iv, p. 93.

Hab.—Cuba. (Coll. Dr. Gundlach.) One specimen. This fine large species is luteous-yellow; the antennæ except scape, spot on vertex, apical half or two-thirds of posterior coxæ and their tibiæ except base, black; wings subhyaline, costa fuscous; scutellum immaculate, with an obtuse tubercle on the disk and two subacute flattened teeth on the carinate posterior margin; femoral teeth numerous and small; abdominal segments with their margins pale ferruginous, the third segment having a large blackish spot above near tip; petiole nearly as long as remainder of abdomen. Length .35 inch.

49. **Smicra juxta,** n. sp.

♀.—Head lemon-yellow; excavation behind antennæ and head behind, black; antennæ fulvous, blackish above, yellow beneath; prothorax lemon-yellow, with a spot on anterior middle, and one on each side, black; mesothorax black, with two oblique stripes on disk and lateral margin rather broadly yellow; scutellum lemon-yellow, with a large transverse black spot, connected to base by a slender black line, apex rounded, unarmed; metathorax with basal and lateral margin rather broadly black; sutures of pleura broadly black; tegulæ dusky; wings hyaline; legs lemon-yellow; tips of posterior coxæ, their trochanters, a large spot on outer disk of their femora, continued beneath and within, and along inferior dentate margin to apex ending there in a spot on both sides, black; femoral teeth numerous and minute; posterior tibiæ black at extreme base; abdomen yellow, banded with black and fulvous, base of first segment with a longitudinal black stripe; petiole about half the length of posterior coxæ, black. Length .23 inch.

Hab.—Mexico. (Prof. Sumichrast.) Two specimens.

50. **Smicra pallens.**

Smicra pallens, Cress. Proc. Ent. Soc. Phil. iv, p. 96.

Hab.—Cuba. Four specimens. Pale yellow; flagellum, a central stripe and spot on each side of mesothorax (sometimes indistinct) as well as anterior and posterior margins, spot on scutellum, tip of metathorax and stain on tip of abdomen, black or dusky; legs immaculate; femoral teeth numerous, minute and dusky; wings hyaline; scutellum unarmed. Length .10—.12 inch.

51. **Smicra delicata,** n. sp.

♀.—Pale yellow, more or less tinged with honey yellow; antennæ pale ferruginous, flagellum fuscous above; thorax imperceptibly punctured, almost smooth; wings hyaline; a honey-yellow spot on extreme tips of posterior femora, also covering base of their tibiæ; femoral teeth numerous, very minute, and black; abdomen ovate, subcompressed at tip, pale coccineous, pale yellowish at base; petiole short, pale yellow. Length .15 inch.

Hab.—Texas. (Belfrage.) Two specimens. Allied to *immaculata* which, however, is more uniformly pale yellow except abdomen, with the petiole much longer and slender.

52. **Smiera immaculata.**

Smiera immaculata, Cress. Proc. Ent. Soc. Phil. iv, p. 97.

Hab.—Cuba. Two specimens. Entirely pale yellowish; antennæ slightly dusky at tips; wings hyaline; femoral teeth numerous, minute and dusky; postorior tarsi blackish at tips; abdomen tinged with fulvous; petiole as long as the remainder of abdomen. Length .10 inch.

The following species have not been identified :—

Smiera nigrifex, Sulzer. Walk. Ent. Mag. ii, p. 22.—" ♂ ♀.—Black; head with two spots between eyes; metathoracic scutellum bispinose at apex; tegulæ yellow; legs black; four anterior femora yellow at tips; posterior femora yellow, base above and apex black, armed with thirteen black teeth; four anterior tibiæ fuscous; posterior tibiæ yellow at tips; their tarsi fulvous, with fuscous tips; wings dusky. Leugth 3 lines."

Hab.—Europe. Said to occur also in North America, with characters slightly modified.

Smiera side, Walker, Ann. Soc. Ent. Fr. 2 sér. i, p. 145.—" ♀.—Black; spots on face and posterior orbits yellow; antennæ piceous; thorax with ferruginous spots; petiole tolerably long; abdomen fusiform, smooth, shining, apex attenuate and acuminate, with ferruginous and yellow bands, base ferruginous, apex black; legs fulvous; coxæ black; tips of tarsi fuscous; four anterior femora piceous, tips fulvous; base of tibiæ fuscous, tips yellow; posterior femora black, base and apex varied with fulvous and yellow; their tibiæ with black bands; wings fuscous. Length 4½ mill."

Hab.—Florida. This seems to approach *delira*.

Smiera pompiloides, Walker, Notes on Chalcidiæ, iii, p. 53, 1871.—" ♂.—Black; antennæ red beneath; petiole longitudinally furrowed, short; abdomen red, fusiform, as long as thorax; hind femora with a large fusiform yellow spot on outer side and on inner side a very broad yellow stripe, much narrowed towards the tips; a slender red stripe beneath along the minute black teeth; wings cinereous, brown towards base. Length 3½ lines."

Hab.—Mexico.

Smiera tenebrosa, Walker, Jour. Ent. i, p. 181.—" ♂.—Black; orbits yellow, broad on face and interrupted on each side of vertex; thorax with a yellow spot on each side in front and another on each side of scutellum, which is unarmed; petiole very short; legs yellow; hind coxæ black, very long; hind femora with many minute teeth, with an angular black band which traverses the disk on each side and is connected on the inner side with an apical black spot; hind tibiæ black at base and tips; wings blackish, paler at base and along hind border. Length 2½ lines."

Hab.—Orizaba, Mexico.

Smiera divisa, Walker, Jour. Entom. i, p. 178.—" ♂ ♀.—Black; head with a yellow spot on each side of the front; thorax with a yellow curved band in front; scutellum unarmed, with a yellow hind border; petiole yellow, long, slender, nearly as long as hind coxæ in ♂; anterior tibiæ of ♂ yellow beneath; hind coxæ very long; hind femora with one large and several small teeth, and

with two yellow stripes on outer side in ♂, and one in ♀; hind tibiæ with a yellow spot; wings cinereous, with a lurid tinge along costa. Length 3—3½ lines."

Hab.—Orizaba, Mexico.

Smicra dimidiata. Sichel (*Conura*), Ann. Soc. Ent. Fr. 4 sér. v, p. 390.—"♀. Black, abdomen entirely yellow; antennæ blackish, yellowish beneath; scutellum emarginate at apex, bilobate; legs black, knees and tarsi yellow; posterior femora with five large teeth, and a large golden spot on outer middle; wings hyaline, dusky at base. Length 8 mill."

Hab.—Orizaba, Mexico.

Smicra erythrina, Walker, Jour. Ent. i, p. 179.—"♀.—Red; head yellowish in front, with a black mark behind; antennæ black, scape red; prothorax with a black sutural line between it and mesothorax; scutum of the latter with a black longitudinal line; scutellum unarmed; pectus mostly black; petiole short; abdominal segments with piceous bands on fore border; hind coxæ with black stripe on each side; hind femora with black streak and lower black stripe on inner side, armed with many minute teeth; wings cinereous. Length 3½ lines."

Hab.—Orizaba, Mexico. This seems allied to *flammeola.*

Smicra Fidius, Walker, Ann. Mag. Nat. Hist. 2 ser. v, p. 127.—"♀.—Red, front and under side yellow; antennæ black, piceous beneath, scape yellow, black at tip; sides of thorax marked with yellow; breast mostly black, a black line passes along the back of scutum of mesothorax; metathorax black; petiole short; abdomen black towards apex; fore and middle legs bright yellow; hind coxæ yellow, tinged with red above and each having a black spot on outside; hind thighs red, their tibiæ yellow towards base which is black, having a black band across the middle and reddish at tips; hind tarsi yellow, tips piceous; wings hyaline. Length 2½ lines."

Hab.—West Indies.

Smicra Pratinas, Walker, Ann. Mag. Nat. Hist. 2 ser. v, p. 130.—"♂.—Bright red; crown of head black, a spot of same color along lower edge of eye; fore chest with a large black spot on its back and a smaller one on each side; a small black spot on each of the epimera of middle chest; petiole long; abdomen smooth, shining, short; antennæ black, red at base, joints 10—14 yellow; hips and thighs red, latter tinged with black; shanks black, with yellow tips, tarsi yellow; hind legs red, coxæ black towards tip and that generally on upper side; hind tibiæ dark red, black at base and towards tips; wings dark brown. Length 2 lines."

Hab.—West Indies.

Smicra Ampyx, Walker, Ann. Mag. Nat. Hist. 2 ser. v, p. 129.—"♀.—Tawny; mouth yellow; petiole as long as abdomen which is elliptical; fore and middle legs yellow; wings hyaline. Length 1¼ line."

Hab.—West Indies.

Smicra fulvescens, Walker, Ent. Mag. ii, p. 25.—"♂♀.—Ferruginous, paler beneath; antennæ fuscous, fulvous beneath; petiole slender, half the length of abdomen, shorter in ♀; abdomen ferruginous, banded with fuscous above; legs yellowish; posterior femora with fourteen black teeth; posterior

tibiæ fuscous beneath; wings hyaline; ♂ abdomen sometimes fuscous, banded with fulvous at base. Length 2½ lines."

Hab.—St. Vincent's Island, West Indies.

Smicra transitiva, Walker, Trans. Ent. Soc. Lond. 3 ser. i, p. 371.—"♀.—Luteous; head black about the ocelli; thorax with a dilated black line; scutellum with two luteous spots and a hindward transverse luteous line; scutellum bidentate; metathorax black; petiole tawny, nearly half the length of abdomen; abdomen black, acutely conical, tawny at base; hind coxæ black towards tips; hind femora with three black spots, armed with four large black teeth; wings dark cinereous. Length 3 lines."

Hab.—East Florida. This seems allied to *pulchra*, Cress., from Cuba and Mexico.

Smicra abdominalis. Walker, Jour. Entom. i. p. 177.—"♂.—Luteous; head black behind; antennæ black, tips and scape luteous; prothorax black along fore border; disks of scutum and parapsides black; scutellum unarmed, black along fore and hind border; paraptera and metathorax black; petiole long, black; abdomen piceous above, with a yellow middle band; hind coxæ black above; hind femora minutely dentate, with a black spot on each disk and with black tips; wings brownish, cinereous towards tips. Length 2½ lines.

Hab.—Orizaba, Mexico. Seems closely allied to *ambigua*.

Smicra subpunctata, Walker, Ent. Mag. ii, p. 25.—"♂♀.—Yellow; head beneath with a black band; antennæ fuscous, fulvous beneath; mesothoracic scutum black anteriorly, with a central black stripe; parapsides and paraptera spotted with black; the spots between scutum and scutellum connected; scutellum with a black spot; pectus with two black spots; metathoracic scutellum with a black band; petiole half the length of abdomen; abdomen fulvous, with five dorsal black spots and apex black, first segment yellow; legs yellow; posterior coxæ with black spots; posterior femora with base beneath and apex black, armed with fourteen black teeth; posterior tibiæ at base, apex and beneath fuscous; wings hyaline; ♂ abdomen sometimes fulvous, banded with fuscous. Length 2½ lines."

Hab.—St. Vincent's Island, West Indies.

Smicra maculata, Fabr. (*Chalcis*) Ent. Syst. ii, p. 198. Walk. Entomologist, p. 217.

Hab.—"Cayenne." (Fabr); "New York" (Walk.). According to Walker's description, this is closely allied, if not identical, with *bracata*, Sanborn.

Smicra nigricornis, Fabr. (*Chalcis*) Ent. Syst. Suppl. p. 243.

Hab.—North America. This seems also closely allied to *bracata*, the short, meagre description of Fabricius applying much better to this latter species, than does that of *maculata*.

Smicra punctata, Fabr. (*Chalcis*) Ent. Syst. ii, p. 196. Sichel (*Conura*) Ann. Soc. Fr. 4 sér. v, p. 392.—"♀.—Yellow; antennæ black, scape yellow; three triangular spots on disk of mesothorax, large spot on apex of scutellum, and a transverse fascia on each side of pleura, black; abdomen yellow with fuscous spots; base and tips of posterior femora (which are 12-dentate), and a

spot near inferior margin, base and tips of their tibiæ, and tips of tarsi, black; wings hyaline, costa yellow; apex of scutellum emarginate, subbilobate. Length 8 mill."

Hab.—West Indies (Fabr.); Mexico (Sichel).

Smicra Pylas, Walker, Entomologist, p. 337; List Chalcid. Brit. Mus. i, p. 3.—"♀.—Yellow; head behind and between ocelli black; antennæ piceous, scape yellow; mesothorax with a marginal abbreviated band in front, a narrow dorsal stripe and a broad lateral stripe abbreviated posteriorly, black; scutellum with basal margin and an obconical dorsal spot, black; paraptera with two black spots; second segment of abdomen with an obsolete fuscous band; legs yellow; apex of tarsi fuscous; posterior coxæ spotted with black; femora with three piceous spots, armed with black teeth; wings hyaline. Length $2\frac{3}{4}$ lines."

Hab.—Mexico. Walker says this "hardly differs form *punctata*."

Smicra amœna, Say, (*Chalcis*) Bost. Jour. Nat. Hist. i, p. 270.—"Body yellow, slightly tinged with green; occiput and antennæ, excepting basal joint beneath, black; thorax quadrilinear with black, the intermediate lines confluent at middle and all united by a transverse line behind and by a slender transverse line at the suture of the first segment, on which the lines do not extend; scutel with a longitudinal black line; metathorax, excepting at base, black; petiole black, about one-third as long as abdomen; each segment of abdomen with a black band; pleura black, with about four yellow spots; posterior coxæ at tip, maculated band, inferior edge and tip of their femora, and tip and base of their tibiæ, black; femora about the size of abdomen, with six or eight large prominent black spines, the superior one divided into three or four. Length less than one-fifth of an inch."

Hab.—"Indiana. Obtained from the pupa of a *Thecla*."

Smicra Lamyrus, Walker, Entomologist, p. 337.—"♀.—Yellow; head black; antennæ black, scape yellow; a subpentagonal black spot on disk of mesothorax; scutellum with two elevated teeth at apex; petiole long and slender; abdomen yellow anteriorly, black posteriorly; posterior coxæ very long, apex piceous, as well as their trochanters; their femora with nine minute black teeth; their tibiæ piceous at apex; wings obscure fuscous, apex subhyaline. Length 3 lines."

Hab.—Mexico. This seems closely allied to *miranda*, which has the whole of mesothorax and the scutellum except apical margin black and the lower and lateral margins of face yellow.

Smicra captiva, Smith, Trans. Ent. Soc. Lond. 3 ser. i, p. 42.—"♀—Yellow; flagellum rufo-fuscous, tips of mandibles ferruginous; a black vase shaped outline on disk of mesothorax, and a black line each side; transverse black line at base of scutellum, the latter with a pear shaped spot on middle and an angular spot at lateral margins; pectus black at base of coxæ and an oblong black spot beneath wings; wings hyaline; apex of posterior coxæ, a brown spot on femora above and two on their sides beneath; base and apex of tibiæ reddish-brown; margins of the abdominal segments narrowly bordered with reddish-brown; widening into spots at sides and on middle. Length 3 lines."

Hab.—Panama.

Smicra scutellaris, Sichel (*Conura*), Ann. Soc. Ent. Fr. 4 sér. v, p. 388, 1865.—"♀.—Entirely yellow; apical half of antennæ, femoral teeth and apical joint of posterior tarsi, black; mesothorax transversely striated; scutellum emarginate at apex, subbilobate; posterior femora with eight acute teeth; wings yellowish-hyaline. Length 13 mill."

Hab.—Orizaba, Mexico.

Genus **CHALCIS,** Fabr.

Posterior femora black, with a yellow stripe above and at base beneath; abdomen clothed with golden pubescence.....**pubescens.**

Posterior femora black, with a white or yellow spot at tips;

Tegulæ black, with posterior margin narrowly white.....**comitator.**

Tegulæ entirely white or yellow.....**ovata.**

Posterior femora yellow on outer side, with large black discal spot....**robusta.**

Posterior femora yellow on outer side, with a black spot at tips beneath.....**tegularis.**

Posterior femora ferruginous, with a yellowish spot at tips:

Four anterior legs yellow-ferruginous, with yellow spots; posterior coxæ black.....**coloradensis.**

Four anterior legs black, varied with yellow; posterior coxæ red..**pedalis.**

1. **Chalcis pubescens.**

Chalcis pubescens, Walker, Notes on Chalcidæ, iii, p. 47.

Hab.—Mexico. (Prof. Sumichrast.) One ♀ specimen.

2. **Chalcis comitator.**

Chalcis comitator, Walk. Trans. Ent. Soc. Lond. 3 ser. i, p. 350, ♂.

Hab.—Mexico. (Prof. Sumichrast.) One ♀ specimen.

3. **Chalcis ovata.**

Chalcis ovata, Say, Long's Second Exped. ii, p. 326, (1824).=*annulipes,* Walk. Ent. Mag. ii, p. 29, ♂ ♀, (1835).=*incerta,* Cress. Proc. Ent. Soc. Phil. iv, p. 101, (1865).=? *minuta,* Linn. Syst. Nat. 952; Fabr. Ent. Syst. ii. p. 195.=? *Leucospis integra,* Hald. Proc. Acad. Nat. Sci. ii, p. 53.

Hab.—United States; Mexico; West Indies. Forty-five ♂ ♀ specimens examined. Size variable (.14—.28 inch); the pubescence varies from whitish to bright golden, sometimes tolerably dense, sometimes scarcely perceptible; apex of scutellum generally rounded, sometimes bituberculate, occasionally more or less emarginate; tegulæ white or yellow; wings generally hyaline, sometimes slightly dusky; legs variable in color, the four anterior femora sometimes black, with tips only white or yellow, sometimes white or yellow with base only black; their tibiæ sometimes entirely white or yellow, but generally more or less black behind; spot at tips of posterior femora tolerably constant in size, but varies in color from white to yellow; their tibiæ sometimes entirely white or yellow behind, generally with a median black band, which is occasionally narrow and interrupted, sometimes very broad, leaving only a white or yellow spot near base and at apex; their tarsi

white or yellow, with the last or two last joints black; abdomen more or less pubescent at apex with silvery white or golden hairs.

4. **Chalcis robusta.**

Chalcis robusta, Cress. Proc. Ent. Soc. Phil. iv, p. 101.

Hab.—Cuba. Four specimens.

5. **Chalcis tegularis.** n. sp.

♀.—Black, sides of face with dense silvery pubescence; labrum and base of scape beneath yellow; apex of flagellum ferruginous; thorax immaculate, large, with regular, dilated punctures; scutellum produced, apex bidentate and fringed with whitish pubescence; metathorax coarsely reticulated; tegulæ pale hyaline; legs lemon-yellow, posterior coxæ above, apical half of their femora within, a spot on outside beneath near apex, as well as the row of minute teeth, black; posterior tibiæ black, with a pale yellow stripe behind; posterior tarsi dull ferruginous; abdomen short, ovate, smooth and shining, immaculate, sides and apex with pale pubescence. Length .20 inch.

Hab.—Texas. (Belfrage.) One specimen. Distinguished at once from *ovata* and *robusta* by the posterior femora being entirely yellow on outer side, except black spot at extreme tips.

6. **Chalcis coloradensis.** n. sp.

♂.—Black, densely punctured, clothed with a short golden sericeous pubescence; scape pale beneath; thorax with regular, dilated punctures; apex of scutellum emarginate; tegulæ yellowish-white; wings hyaline, iridescent; legs ferruginous, coxæ black, four anterior knees, tips of their tibiæ, their tarsi, spot at tip of posterior femora, a band near base of their tibiæ and another at tips, pale yellow; femoral teeth small, numerous and black; abdomen short ovate, smooth and polished, apical segments clothed with pale golden pubescence. Length .20 inch.

Hab.—Colorado. One specimen.

7. **Chalcis pedalis.** n. sp.

♀.—Head and thorax black, with pale sericeous pubescence; thorax with large, regular, dilated punctures, apex of scutellum subdentate; tegulæ white; wings hyaline; four anterior legs black, apex of their femora, their tibiæ at base, apex and within, and their tarsi except apical joints, whitish; posterior legs ferruginous, spot at tip of femora above and a spot at base and apex of their tibiæ behind, white; abdomen as long as head and thorax, black, immaculate, polished, apex pubescent. Length .23 inch.

Hab.—Texas. (Belfrage.) One specimen. Closely allied to *coloradensis*, which has differently colored legs.

The following species have not been identified:—

Chalcis pendator. Walk. Trans. Ent. Soc. Lond. 3 ser. i, p. 351, ♂.

Hab.—San Domingo.

Chalcis restituta. Walk. Trans. Ent. Soc. Lond. 3 ser. i, p. 351, ♀.

Hab.—Jamaica.

Chalcis compacta. Walk. Jour. Ent. i, p. 183, ♂.

Hab.—Orizaba, Mexico.

Descriptions of new species of DIURNAL LEPIDOPTERA found within the United States.

BY WM. H. EDWARDS.

1. Colias Astræa.
2. Anthocaris Julia.
3. Neophasia Menapia, ♀.
4. Argynnis Bremneril.
5. Argynnis inornata.
6. Argynnis Eurynome.
7. Argynnis Meadii.
8. Grapta Hylas.
9. Satyrus Charon.
10. Erebia Meadii.

Colias Astræa. n. sp.

Male.—Expands 2 inches. Upper side pale ochraceous, very little tinted with orange on disks of secondaries from cell to marginal border and from base to hind margin of secondaries below cell, this color being not decided but only a tint; border of primaries pale black, of medium width, erose within, very little advanced on costa and sending out a short and attenuated spur on inner margin; border of secondaries very narrow, erose within, and unusually long, extending from above upper sub-costal nervule to below lower median; discal spot of primaries a short black streak; on secondaries wanting.

Under side of primaries yellow nearly as above, without orange; of secondaries yellow densely covered with black scales so as to obscure the whole surface; discal spot of primaries very narrow, black, enclosing a few yellow scales, of secondaries white, as in *Alexandra*, without a ring; no spot on costal margin; a scarcely perceptible pink tint at base; legs yellow, the tibia and tarsi faint pink; palpi yellow tipped with pink. (Antennæ wanting in the specimen described.)

From a single male taken near the Yellowstone Lake by the Hayden Expedition, in 1871. On the under side this species is nearest *Alexandra;* on the upper of a different shade of color from any of our species.

Anthocaris Julia. n. sp.

Male.—Expands 1.3 inch. Upper side pure white, black at base; primaries have a bright orange apical patch, edged outwardly by a sharply serrated black band which is broadest at apex and narrow as it descends the margin, but is not broken into distinct spots as in the allied species *Sara* and *Reakirtii;* on the arc a sinuous black bar nearly protracted to costal edge, and at its upper extremity expanded in direction of base to double its width elsewhere; from the lower third of hind margin proceeds a stripe of scattered black scales which borders the orange patch,

sometimes terminating a little below the lower outer corner of the discal bar but usualy curving around the bar and separated from it, and even reaching the sub-costal nervule, but in no case forming a continuous stripe with the bar as is often seen in the two allied species; costal edge specked with black; secondaries usually immaculate but occasionally showing small marginal black spots on the nervules; fringes of both wings white, black at tips of the nervules. Under side white, the apex and apical portion of the hind margin yellow, between which color and the orange spot is a pinkish space, all much obscured by greenish brown scales; the orange spot reduced and paler; costal margin pinkish, thinly covered with small brown spots; on the arc a bent bar nearly bisected; secondaries have the nervures for one-third the distance from base orange, beyond to margin yellow; the surface thickly covered with irregular patches of greenish brown on which are sprinkled yellow scales.

Body grey-black above, beneath, thorax white, abdomen yellowish; the outer portion of the orbits of the eye orange; legs whitish, the femora orange; palpi furnished with intermingled white and black hairs; antennæ orange at base, grey-brown above, grey below; club black tipped with yellow.

Female.—Expands 1.1 inches. Upper side bright lemon-yellow; the orange spot as large as in male, paler, replaced by yellow next the apical border; sometimes, however, this yellow space is divided into spots edged by black scales, imitating the usual markings of *Sara;* the discal bar as in male but limited by subcostal nervure; fringes yellow, black at tips of nervules; under side yellow, marked as in the male.

From 22 specimens, 10 ♂, 12 ♀, taken by Mr. Mead, on the 9th 10th and 12th of June, 1871, in the pine woods of the mountains immediately surrounding the South Park, at Fairplay, Colorado. The species was not seen elsewhere. It was swift of flight and easily alarmed when it became very difficult to capture. In this respect and in its limited locality it offered a strong contrast to *A. Ausonoides*, which was found in all situations throughout the Territory.

This species may be readily distinguished from *Sara* by its size and by the far greater degree of mottled surface on secondaries; also by the sinuosity of the discal bar and the curvature and arrangement of the stripe from margin; the black border is proportionately narrower at apex, is continued down the margin without interruption and is very sharply serrated throughout. Nearly the same differences are found between *Julia* and *Reakirtii*, though some individuals of this last species have the secondaries as densely mottled as in *Julia* and similarly. In

some respects *Julia* is intermediate between the other two, but is more constant to its type than either. The female appears to be always yellow, whereas in *Sara* one half are yellow and in *Reakirtii* none. Besides this species and *Ausonoides*, Mr. Mead brought home *Creusa* of Doubleday, a few specimens of which were taken in company with *Ausonoides*. No other species of *Anthocaris* was seen.

Neophasia Menapia, Felder; Edw. But. of N. A.

Female.—Expands 2 inch. Upper side sordid white; primaries bordered on costa and at apex and on hind margin with fuscous as in male, enclosing in same manner white spots, at least five in number; secondaries differ from male in that the hind margin is bordered by a broad fuscous band, within which, next margin, are five large, rounded, soiled-white spots; each of these spots meets the margin which at that point is edged with orange. Under side of primaries nearly as above, except that the curved extremity of the costal band of upper side is separated and becomes a distinct spot on the lower part of the arc. Secondaries have the nervures all broadly bordered by fuscous, and crossed by a sub-marginal fuscous band corresponding to the anterior portion of the band above; the margin edged by orange spots in the interspaces; and the edge of both costal and abdominal margin more or less washed with same color; shoulder also orange.

Until quite lately the female of *Menapia* has been unknown or supposed to be similar to male. In the "Butterflies of North America," I have figured such a female erroneously. The true female has been brought from San Juan by Dr. Bremner and will be seen to differ widely from the male.

Argynnis Bremnerii, n. sp.

Primaries long, narrow, produced apically; hind margin convex or nearly straight.

Male.—Expands 2 to 2.4 inches. Upper side yellow-fulvous, dark brown at base and nearly up to mesial band; hind margins bordered by two fine parallel black lines, the intervening fulvous space divided by the black nervules; resting on these lines are pale fulvous, double-convex spots, rather sub-ovate next apex of primaries, and each preceded by a black spot which at apex of primaries and on whole of secondaries are lunate, but on posterior half of primaries serrate; the rounded spots small; the mesial zigzag band very heavy on both wings and confluent; the marks in cell of primaries as in Monticola, the first of the three sinuous bars being usually confluent at its lower extremity with the second; in the sub-median interspace a sagittate spot; see-

ondaries have on the arc a heavy black spot like the letter C inverted, connected with the mesial band by a black bar that crosses the lower sub-costal interspace; fringes yellowish, black at tips of nervules.

Under side of primaries red-fulvous next base and over inner margin ferruginous along the nervules, pale buff apically; spots as above; the ferruginous sub-apical patch encloses two or three imperfectly silvered spots; the marginal spot also imperfectly silvered; the black lunules replaced by ferruginous. Secondaries ferruginous from base to outside the second row of spots; space between this and first rows pale buff, somewhat irrorated posteriorly with ferruginous; the seven marginal silver spots narrow, sub-triangular, edged above with ferruginous; the seven of second row are each narrowly edged with black, the first three nearly equal, the fourth minute, the fifth large, sub-rotund, the sixth sub-rectangular, the seventh lunate; in the third row, each edged with black, the first and third nearly equal, lunate, the second sub-pyriform, cut by the ferruginous arc; in cell a small round spot, and three spots at origin of nervures; shoulder well silvered; abdominal margin slightly.

Body black covered with fulvous hairs, beneath grey-fulvous; legs buff; palpi buff, fulvous in front, fuscous at tip; antennæ fuscous above, fulvous below; club black, fulvous at tip.

Female.—Expands 2.7 inches. Upper side similar to male, the marginal lines and lunate spots confluent, forming a broad, black band the enclosed fulvous spots much paler than the ground; black markings heavier than on male, and basal portions still more obscured.

Under side of primaries fiery-red, ochraceous at apex; the silver spots distinct, three sub-apical and six or seven marginal; secondaries ferruginous at base and on disk mottled with ochraceous; the band clear ochraceous; the silver spots shaped as in male, but larger and well silvered.

From 2 ♂, 1 ♀, taken on San Juan Island by Dr. Bremner of H. M. Ship Zealous, in 1871, and in the collection of Henry Edwards, Esq. of San Francisco.

This species is sufficiently unlike any of our Argynnides, and I hardly know which is its nearest ally. In heaviness of the black markings it resembles *Monticola*, in the beauty of the silvering *Cybele*, while in shape of the wings it is like *Halcyone*.

Argynnis Inornata, n. sp.

Primaries strongly arched, produced apically, straight on hind margin in the male, slightly concave in the female.

Male.—Expands 2.5 inches. Upper side red fulvous much ob-

scured from the mesial band to base so as to render the blackish markings indistinct as compared with *Hesperis*, the nearest allied species; margins bordered by two parallel lines that are confluent on primaries and on upper half of secondaries, forming a black band through which faintly appears a tint of fulvous in the interspaces; on this band rests a connected series of black lunules enclosing pale fulvous spots; the other black markings as in *Hesperis*, but heavier; on disks of secondaries paler spots corresponding to the second row on underside; the black markings in cell of primaries next anterior to the spot on arc strongly bent so as to enclose a sub-quadrate space which is paler than the ground color; fringes lutcous, black at tips of all nervules. Under side of primaries cinnamon brown at base and up to the mesial black band and within the P like spot on the arc; but the sub-quadrate space and that portion in cell next posterior is buff; rest of wing buff, including the sub-marginal and sub-apical spots.

Secondaries reddish-brown from base to outside of second row of spots, the band between this and outer row buff and immaculate; the marginal spots large, broad, sub-triangular, very slightly edged above by brown; those of second row mostly large, broad-oval; of the third row, the first on costa is nearly round, the second trapezoidal, the third a dash only; the spots of the second and third rows lightly edged above with black; two round spots in black rings in cell, a long oval at base of sub-median and a dash at base of sub-costal; all these buff, scarcely differing from parts of the ground color, and without silver.

Body covered with fulvous hairs, grey buff beneath, abdomen buff; legs buff, palpi same, fulvous in front and at tip; antennæ black above fulvous below; club black, tip fulvous.

Female.—Expands 2.7 inches. Upper side paler, the general appearance more that of an Euptoieta, the whole outer portion of the wings, including the sub-marginal spots and the discal spots of secondaries faded to a whitish ochraceous; in cell of primaries the space within the P and that between the two black lines next base deep orange fulvous, rest of cell of same shade as the disk, the subquadrate space conspicuous; under side of primaries orange fulvous instead of cinnamon-brown; secondaries next base pale brown mottled with buff, the spots shaped as in male but greatly enlarged; on the submarginal spots of secondaries may be seen a few scales of silver.

From a pair belonging to the collection of James Behrens, Esq., of San Francisco, and taken at Downieville, California.

Argynnis Eurynome, n. sp.

Primaries slightly arched, rounded apically; hind margin convex.

Male.—Expands from 1.7 to 2 inches. Upper side uniform yellow fulvous, very little dusky at base; hind margins of both wings edged by a common conspicuous black band formed by the usual parallel lines and the lunules anterior, all of which are confluent, the lunules enclosing fulvous spots; the rounded spots next preceding small; across the disk of each wing a delicate confluent zigzag band, before which, on primaries, are the usual cellular inscriptions; at the base of lower median interspace a black mark and a sagittate spot below; on cell of secondaries a spot like the letter C inverted; fringes luteous, on primaries only cut with black at tips of nervules. Under side of primaries pale buff, the disk and a narrow space along the nervules pale ferruginous; the three upper or sub-apical spots silvered as well as the five upper marginal spots.

Secondaries yellow buff throughout, but from base to second row of spots mottled with pale ferruginous and olivaceous, the latter, in fresh specimens often a decided green; the band between the two outer rows of the spots broad, yellow-buff and immaculate, except that on the upper edge are olivaceous or green shadows projected from the silver spots; the spots of the outer row are triangular, those of the second long oval, the 1st and 5th equal and the 2nd, 3rd and 6th narrower than the 1st but equally long, the 4th small, the 7th lunate, all delicately edged by black above; in the third row are three large spots, the 1st and 3rd lunular, the 2nd subquadrate, all edged with black above in cell a round spot in black ring; a long oval in the interspace below and a dash of silver at base of cell and also of subcostal interspace; shoulder and abdominal margin well silvered.

Body above black covered with dark fulvous hairs; beneath buff; legs buff; palpi buff, fulvous above at tip; antennæ black annulated with greyish above, fulvous below; club black tipped with bright fulvous.

Female.—Expands 2 inches. Color paler, the sub-marginal spots whitish, the black marginal band broader and all the markings heavier.

This pretty species I have known for some years and had supposed it to be *Astarte*, Doubleday. But Mr. A. G. Butler, to whom I sent a specimen for comparison with the type of *Astarte* in the British Museum Collection, writes me that it is not that species, which, he adds, resembles rather a Melitæa in the character of its markings on the under side. Mr. Mead found the species common throughout Colorado, flying among the grasses and along the streams, frequently alighting and

easily taken. Fresh specimens are beautifully ornamented on the under surface, the silver being conspicuous and the yellow and green bright. Among a large number taken by Mr. Mead, one male was without silver, the spots being clear yellow.

Argynnis Meadii. n. sp.

Primaries slightly arched, but little produced, straight on hind margin.

Male.—Expands 2.2 inches. Upper side bright fulvous, very little obscured at base; hind margins bordered by two fine parallel lines enclosing throughout a narrow fulvous space, divided by the black nervules; upon these lines rest a confluent series of black spots, those next apices and next anal angle lunate, the remainder, on primaries, nearly serrate and those on middle of secondaries sharply serrate, all enclosing fulvous spots; the rounded spots next preceding moderately large; the mesial zigzag band common, narrow and uniform; in cell of primaries the usual inscriptions; at origin of lower branch of median a black mark, and below, in next interspace, a sagittate spot; discal spot on secondaries shaped like the letter C inverted; the second row of silver spots of under side are indicated above by a slightly paler space; fringes of primaries almost wholly black, there being merely a little luteous against the middle of each interspace; of secondaries wholly luteous, except a little black at tips of the posterior nervules. Under side of primaries pale cinnamon brown at base and along the nervures of disk, remainder light buff, except that the hind margin and apical portion are of a delicate yellow-green; the five upper marginal spots are well silvered and sub-apically are three others, the middle one being conspicuous.

Secondaries wholly golden-green, a sub color of buff showing along the middle of the band between the outer rows of spots; all the spots well silvered; of the seven marginal, the one next anal angle is sub-lunate, the next three are broad and sharply serrate, the two following less serrate and the last at outer angle sub-ovate; all these completely edged with black; the second row consists of seven, mostly long oval, the 1st, 2nd and 6th from costa of equal breadth, the 3rd narrower, the 5th very broad, the 4th a point, the 7th irregular, all heavily edged above with black, and slightly elsewhere; the third row of four, the 1st sub-rotund, the 2nd trapezoidal, the 3rd and 4th rather dashes of silver, all edged above only with black; in the cell two rounded spots in black circles, a long oval in sub-median interspace and a dash at base of sub-costal; shoulder and abdominal margin lightly silvered.

Body above covered with fulvous hairs, beneath, thorax grey buff,

abdomen buff; legs fulvous; palpi white furnished in front with long fulvous hairs that are black at tips; antennæ fuscous above, fulvous below, greyish next club; club black, tip fulvous.

Female.—Same size. Color pale, the submarginal spots still paler than the ground, rather a sordid white, as are also the spots across disk of secondaries; the marginal lines confluent and the lunules heavy, especially on secondaries; otherwise like male; under side like male, the lighter portions of fringes nearly white.

This lovely species was first brought to notice by Mr. Mead, who took a single male in perfect condition at Turkey Creek Junction, in Colorado in 1871. Subsequently a female was brought in by the Hayden Yellowstone Expedition, taken the same season.

Grapta Hylas, n. sp.

Male.—Expands 1-7 inch. Upper side dull red fulvous, fading towards margins; hind margin of primaries broadly bordered with dark brown, on the anterior edge of which is a series of yellow dentations; on costa a ferruginous sub-apical patch and another on inner margin near angle; spots as in *Faunus;* secondaries have a diffuse fuscous border extending over one-third the wing, fading gradually into fulvous on disk, and enclosing a sub-marginal series of small yellow spots; a large black spot on costa and a small one on arc, the two being often joined and sometimes confluent; abdominal margin much obscured by brown; edges of hind margins covered with yellow scales; fringes white in the emarginations, fuscous at tips of nervules.

Under side marbled in shades of grey, tinted with brown near base and throughout streaked with black or fuscous; the basal space limited on disk by a band with outline as in *Faunus;* in cell three spots disposed as in *Faunus;* the extra-basal space nearly uniformly grey, mottled with darker shades; the usual sub-apical patch on primaries scarcely lighter than the rest; across the disks a complete series of brown points which on primaries are mostly edged with grey-white scales, but on secondaries are nearly lost in the grey shade of the wing; incision of primaries bordered by dark-brown or blackish lunations; on secondaries these are broken into separated serrated spots from apex to tail and often more or less wanting; discal mark silvered, very slender, curved, open, not barbed but attenuated, especially the lower limb which equals the other in length.

Body fuscous above dark grey tinted with brown below; legs and palpi grey; antennæ dark above, fuscous below; club black, tip yellow.

Female.—Expands 1.8 inch. Upper side paler, yellow-fulvous beyond disk; yellow spots larger; under side iron-grey, suffused at base with brown; the markings nearly obsolete; discal spot nearly obsolete; sometimes this is a narrow line bent at an obtuse angle.

From about 20 specimens taken in Colorado, in August 1871, by Mr. Mead. These were found in company with *G. Zephyrus* and *Vannessa Antiopa*. The species is near *Faunus* in many respects but differs decidedly in the coloration of under surface, and in the shape of the silver mark. The upper side also shows nothing of the intense fulvous of *Faunus*.

Satyrus Charon. n. sp.

Male.—Expands from 1.5 to 1.7 inch. Upper side dark brown; hind margins bordered by two fine parallel lines, a little anterior to which is a third line, not distinct; primaries have a blackish band along posterior side of cell, as in *S. Silvestris;* also two ocelli beyond disk, the upper and larger always present, the other sometimes wanting, or a mere point; these are black in faint yellowish rings, though the rings are sometimes obsolete; fringes of secondaries brown, of primaries brown mixed with grey. Under side of primaries brown with a slight tint of yellow; the marginal and submarginal lines distinct; costa and apex greyish; the basal portion streaked with brown; the ocelli black in bright buff rings and with white central dots; secondaries brown mottled with grey, especially on outer limb and next base, and throughout much streaked with brown; the inner of the two marginal lines diffuse and the sub-marginal much scolloped towards outer angle; the disk crossed by a dark band with blackish irregular edges; the ocelli minute, consisting of black spots with white central dots, and varying from one to six on individuals.

Body, legs and palpi dark brown; antennæ annulated with brown and whitish above, whitish below; club pale fulvous.

Female.—Expands 1.7 inch. Paler than the male, but similarly marked.

This species was first met with by Mr. Mead, in Colorado, near the Twin Lakes, in Upper Arkansas Valley, (elevation 8000 feet) in July 1871. It flew near the ground, frequently alighting on the sage-brush, and seemed much more partial to flowers than was *Satyrus Ridingsii*, also common in that vicinity. By the latter part of July it was abundant throughout the entire Park and mountain country and so continued till September.

Erebia Meadii, n. sp.

Male.—Expands 1.5 to 1.7 inch. Upper side light brown; primaries have a large, sub-triangular, fulvous patch on disk, within which are two large black ocelli, each with minute white pupil; secondaries have a single small black ocellus in ferruginous ring and with white pupil, the latter sometimes wanting. Under side brown covered with blackish streaks, mostly abbreviated; both wings edged by two parallel dark lines, the inner one of which is diffuse on secondaries, and at a little distance anterior is a third line, wavy and diffuse; the fulvous space on primaries deeper colored and occupying a larger portion of the wing than on upper side, reaching nearly to base; the ocelli as above but each surrounded by an ochraceous ring; on secondaries are two small ocelli with white pupils, one being in lower median interspace and the other in sub-median; across the disk a wavy dark band and another nearly parallel towards base.

Body fuscous, legs and palpi same; antennæ annulated fuscous and whitish above, whitish below; club fulvous.

Female.—Expands 1.8 inch. Color paler, the fulvous less intense, similarly marked; sometimes a black dot mid-way between the two ocelli and a small black spot below and near the lower one.

Found by Mr. Mead, at Bailey's Ranch, in the South Park, Colorado, about 45 miles from Denver, during the last week of August 1871. Although not found at a few miles on either side of this point it did not seem to be uncommon there. Altogether 49 specimens were taken, a few of them perfect, but the greater part old and worn. They should be looked for about 1st of August.

Additions to the "Synopsis of N. Am. MUTILLIDÆ."

BY CHAS. A. BLAKE.

Since the publication of the "Synopsis" (Trans. vol. iii, pp. 217—265), I have had the opportunity of examining a small but interesting collection of Mutillæ from Texas, containing several new species, and varieties of some already known. A list of the species will be given below, with descriptions of such as appear to be new.

I have also had the unexpected pleasure of seeing a copy of "D'une Monographie des Mutilles de l'ancien Continent, by M. O. Radoszkovsky," a handsome and exhaustive work, published in St. Petersburgh, in 1870, in which he has adopted a somewhat similar classification to that given in my "Synopsis." He also attaches some importance to the form of the ventral carina of the basal abdominal segment. Not having examined a sufficiently large series of individuals, I have been unable to determine its value as a specific character.

Genus **MUTILLA**, Linn.

Subgenus **MUTILLA**, Blake.

DIVISION I.

Mutilla Grotei, Blake, Synopsis, p. 228.

One ♂ specimen from Bosque Co. (Belfrage.)

Mutilla Promethea, Blake, Synopsis, p. 229.

Two ♂ specimens from Dallas Co. (Boll.)

Mutilla Sayi, Blake, Synopsis, p. 229.

One ♂ specimen from Bosque Co.

Mutilla ornativentris, Cress.—Synopsis, p. 230.

Four ♀ specimens. One very fine specimen from Bosque Co. measures 6 lines in length.

Subgenus **SPHÆROPTHALMA**, Blake.

DIVISION I.—Subdivision I.

Mutilla pennsylvanica, St. Farg.—Synopsis, p. 233.

Two ♂ specimens from Dallas Co.

Subdivision II.

Mutilla Orcus, Cress.—Synopsis, p. 233.

Two ♂ ♀ specimens from Dallas Co. have the clothing of the abdomen coccineo-ferruginous instead of fulvous.

Mutilla Gorgon, Blake, Synopsis, p. 233.

Three ♀ specimens from Dallas Co. One specimen measures only 5 lines in length.

Mutilla Zelaya. Blake, Synopsis, p. 234.

One ♂ specimen from Bosque Co.

Mutilla Clotho. n. sp.

♀.—Black; head subquadrate, posterior angles rounded, not as wide as the thorax, densely rugose, clothed with black pubescence, cheeks below the eyes closely and irregularly punctured; eyes round, prominent; scape of antennæ punctured, black, flagellum piceous. Thorax robust, ovate, narrowed posteriorly, densely clothed above with black pubescence, sides closely punctured, mesothorax armed posteriorly with a small tubercle on each side, metathorax abruptly truncate, closely punctured. Legs black, clothed with black hairs, intermediate and posterior tibiæ armed with long spines. Abdomen ovate, basal segment closely punctured, clothed with long erect black hairs, second segment having a broad band of reddish golden pubescence, emarginate anteriorly and posteriorly, divided by a narrow central longidinal line of black, base and apical margin black, third and fourth black, apical segment clothed with reddish golden pubescence. Under side black, closely punctured, sparsely clothed with black hairs, margins of all the segments fringed with long black pubescence. Length 10 lines.

One specimen from Dallas Co. This fine species is allied to *comanche*. It differs from the latter in having the head less rounded, and the thorax somewhat longer, the clothing is also less coarse than in *comanche*. It also resembles *occidentalis* in the ornamentation of the abdomen, but the head and thorax are entirely black.

Mutilla Leda. n. sp.

♀.—Black; head subquadrate, posterior angles rounded, wider than the thorax, densely punctured, thinly clothed with scattered golden hairs. Antennæ fuscous; eyes small, round; mandibles ferruginous at base, black at tips. Thorax short, ovate, thinly clothed with obscure golden pubescence, sides coarsely reticulate, metathorax abruptly truncate. Legs black, clothed with black hairs, intermediate and posterior tibiæ armed with long spines. Abdomen ovate, clothed above with coarse golden pubescence. Underside covered with coarse confluent punctures, margins of the segments fringed with black hair. Length 6½ lines.

One specimen from Dallas Co. Closely resembles *aureola*, Cress.

Mutilla Chiron. n. sp.

♂.—Black; head not as wide as the thorax, clothed with long black pubescence; antennæ black; eyes small, round, prominent. Thorax short, ovate, clothed with long black pubescence; metathorax coarsely reticulate. Wings moderate, fuliginous, three submarginal cells, the marginal cell truncate at tip, first submarginal large, second small, subtriangular, its basal and apical nervures sinuate, receiving the first recurrent nervure near the base; third submarginal larger, slightly narrowed beneath, receiving the second recurrent close to its apical nervure. Legs black, clothed with black hairs. Abdomen ovate, petiolate, basal segment coarsely punctured, second closely and finely punctured, clothed with long, erect black pubescence, remaining segments densely clothed with long fulvo-ferruginous pubescence. Underside shining, second segment closely punctured. Length 4½ lines; expanse of wings 6 lines.

Two specimens from Bosque Co. This species is closely allied to *fulvohirta*, Cress., but may be readily distinguished by the clothing of the head and thorax being black, and having the third submarginal cell distinct. One variety has the thorax and apical segment of the abdomen clothed with fulvous pubescence.

Mutilla Ægina, Cress.—Synopsis, p. 235.

Two ♀ specimens from Dallas Co. have the pubescence paler and brighter than those from Colorado; the apical segment of the abdomen is black, as well as the pubescence of the legs.

Mutilla occidentalis, Linn.—Synopsis, p. 236.

Five ♂ ♀ specimens from Dallas Co. Some of the ♀ specimens have the pubescence bright fulvous, with a golden sericcous lustre when viewed obliquely.

Mutilla Creusa, Cress.—Synopsis, p. 236.

Seven ♀ specimens from Dallas Co.

Mutilla bioculata, Cress.—Synopsis, p. 236.

Three ♂ specimens. One specimen from Dallas Co. has the second abdominal segment almost entirely yellow-ferruginous.

Mutilla Castor, Blake, Synopsis, p. 237.

Three ♂ specimens from Dallas Co. This species may be distinguished from *fenestrata* by the basal segment of abdomen being more nodose and *castaneous*, while in the latter species it is invariably black.

Mutilla fenestrata, St. Farg.—Synopsis, p. 238.

Four ♂ specimens from Dallas and Bosque Counties.

Mutilla Creon, n. sp.

♂.—Ferruginous; head round, closely punctured, thinly clothed with erect black hairs; scape of antennæ castaneous, flagellum piceous. Eyes round, prominent. Thorax ovate, densely punctured, sparsely clothed with erect black hairs, metathorax roundly truncate, coarsely reticulate. Wings moderate, fuscous, subhyaline from base to beyond the middle, marginal cell subovate, roundly truncate at tip, three submarginal cells, second subtriangular, receiving the first recurrent nervure at middle, third narrowed beneath, receiving the second recurrent close to its apical nervure. Tegulæ round, tufted posteriorly with pale hairs. Legs black, thinly clothed with whitish hairs. Abdomen ovate, petiolate, basal segment densely punctured, second segment fulvo-ferruginous, darker at base, finely and closely punctured, apical margin black, third, fourth and fifth segments black, clothed with long black pubescence, apical segments with pale yellowish. Ventral segments fringed with pale yellowish hairs, apex with two sharp longitudinal carinæ. Length 5 lines; expanse of wings 6½ lines.

One specimen from Bosque Co.

Mutilla Waco, Blake, Synopsis, p. 238.

One ♀ specimen from Bosque Co.

Mutilla Admetus, n. sp.

♂.—Head and thorax black; the former round, not as wide as thorax, coarsely punctured, thinly clothed with erect hairs, antennæ black; eyes round, prominent. Thorax ovate, narrowed posteriorly, coarsely punctured, metathorax roundly truncate, deeply reticulate. Wings fuliginous, marginal cell short, roundly truncate at tip, second submarginal subtriangular, its basal nervure sinuate, receiving the first recurrent nervure before the middle, third submarginal indistinctly defined. Legs black, thinly clothed with black hairs. Abdomen ovate, petiolate, basal segment black, coarsely punctured, second and following segments dark ferruginous, closely punctured, thinly clothed with erect black hairs, margins of the segments fringed with black pubescence. Length 6 lines; expanse of wings 8½ lines.

One specimen from Comal Co. This may be the ♂ of *Waco*.

Mutilla 4-guttata, Say.—Blake, Synopsis, p. 246.

Three ♀ specimens from Dallas Co., measuring 4½—6½ lines in length, one specimen being unusually robust.

Mutilla ferrugata, Fabr.—Blake, Synopsis, p. 246.

Sixteen ♀ specimens of all sizes and varieties.

Mutilla mutata, Blake, Synopsis, p. 247.

One ♀ specimen from Dallas Co.

Mutilla scævola, Blake, Synopsis, p. 247.

One ♀ specimen from Bosque Co.

Mutilla balteola, Blake, Synopsis, p. 248.

One ♀ specimen from Dallas Co.

Mutilla albopilosa, n. sp.

♀.—Ferruginous; head subquadrate, posterior angles rounded, closely and finely punctured; eyes small, round; antennæ fusco-ferruginous; mandibles tipped with black. Thorax subquadrate, narrowed behind, densely punctured, metathorax abruptly truncate. Legs castaneous, clothed with glittering white hairs. Abdomen ovate, second segment, densely and finely punctured, apical segments blackish, fringed with whitish pubescence, underside paler than above. Entire insect clothed with erect white hairs. Length 4 lines.

Hab.—Texas. (Belfrage.) One specimen from Comal Co.

This species closely resembles some individuals of *ferrugata*, but may be readily distinguished by the rather dense white erect pubescence.

DIVISION II.

Mutilla Oceola, Blake, Synopsis, p. 248.

One ♂ specimen from Bosque Co.

Mutilla grandiceps, n. sp.

♂.—Bright ferruginous; head subquadrate, nearly three times as wide as the thorax, hind margin deeply concave, posterior angles produced into acute teeth, finely and closely punctured, cheeks armed posteriorly beneath with a long acute spine; mandibles long, bidentate at the tips which are blackish. Antennæ: scape and two basal joints of flagellum pale ferruginous, remaining

joints fuscous. Eyes small, round. Thorax elongate subquadrate, feebly narrowed at middle, prothorax with a small tubercle on each side, metathorax roundly truncate, reticulate. Wings only rudimentary. Legs castaneous, thinly clothed with whitish hairs, calcaria white. Abdomen elongate ovate, sessile, stained with castaneous, closely and finely punctured, thinly clothed with silvery hairs. Length 3 lines.

♀.—Bright ferruginous; head nearly as large in proportion to the thorax as that of the male. Thorax robust, subquadrate, minutely punctured, sides deeply excavate. Legs castaneous, thinly clothed with glittering hairs, posterior tibiæ armed with spines. Abdomen above stained with castaneous, thinly clothed with silvery pubescence. Length 2¾ lines.

Two (♂ ♀) specimens from Bosque Co. A very curious little species, in structure allied to *laticeps*, Blake.

Mutilla simillima, Smith.—Synopsis, p. 255.

Three ♀ specimens from Dallas and Bosque Counties.

Mutilla Electra, n. sp.

♀.—Head black, subquadrate, posterior angles rounded, closely punctured, vertex clothed with reddish golden pubescence; eyes round, prominent; scape of antennæ castaneous, flagellum piceous. Mandibles ferruginous at base, black at tips. Thorax ovate, narrowed posteriorly, bright ferruginous, finely punctured, thinly clothed with reddish golden pubescence, bearing on each side two small tubercles, metathorax coarsely rugose on disc, abruptly truncate. Legs black, thinly clothed with glittering white hairs. Abdomen ovate, entirely black above, closely and minutely punctured, thinly clothed with black pubescence. Under side closely and finely punctured, clothed with silvery pubescence, the margins of the second third and fourth segments fringed with silvery pubescence, apex black. Length 4½ to 6 lines.

Two specimens from Dallas Co. Very distinct by the abdomen being entirely black above and clothed with silvery pubescence beneath.

Genus **AGAMA,** Blake.

Agama Aulus, n. sp.

♂.—Uniform dark honey-yellow; thinly clothed with erect white hairs. Head subquadrate, posterior angles rounded, shining, very minutely and distantly punctured; eyes large, round, prominent, ocelli moderate; scape of antennæ honey-yellow, scutellum fuscous; tips and upper edge of mandibles blackish. Thorax elongate subquadrate, rounded in front, pro- and mesothorax finely punctured, the latter with four faintly impressed longitudinal lines, metathorax roundly truncate, broadly and shallowly reticulate. Wings moderate yellowish hyaline, marginal cell large, ovate lanceolate, first submarginal cell narrow, second subquadrate, pointed towards base, its basal nervure sinuate, third, subobsolete. Stigma fuscous, its apical two-thirds lying within the marginal cell. Tegulæ round, polished, honey-yellow. Legs fuscous, thinly clothed with whitish hairs. Abdomen elongate-ovate, petiole pyriform, its ventral carina terminating anteriorly in an obtuse tooth, second segment shining, minutely and distantly punctured, apical margins of all the segments fringed with white pubescence. Length 5 lines; expanse of wings 8½ lines.

Hab.—Texas. (Belfrage.)

Agama minuta, n. sp.

♂.—Uniform dark honey-yellow; head round, shining, minutely punctured; eyes large, prominent; antennæ pale fuscous. Thorax elongate-ovate, closely punctured, metathorax roundly truncate, broadly and feebly reticulate. Wings hyaline, marginal cell ovate, first submarginal large, second small, subtriangular, pointed towards base, receiving the first recurrent nervure at base. Stigma large, pale fuscous, two-thirds within the marginal cell. Tegulæ, round, pale honey-yellow. Legs honey-yellow, thinly clothed with white hairs. Abdomen elongate-ovate, petiole pyriform, the ventral carina terminating in a sharp tooth anteriorly, second segment shining, minutely punctured, apical margins of all the segments thinly fringed with pale pubescence. Length 2 lines; expanse 3½ lines.

Hab.—Texas. (Belfrage.)

Agama juxta, n. sp.

♂.—Uniform dark-brown; thinly clothed with whitish hairs. Head rounded, narrowed posteriorly, finely punctured; eyes large, prominent as well as ocelli. Antennæ pale honey-yellow; mandibles tipped with black. Thorax robust, elongate-ovate, shining, finely punctured, mesothorax with four longitudinal impressed lines, metathorax roundly truncate, broadly reticulate. Wings moderate, yellowish hyaline, marginal cell broadly ovate, first submarginal elongate, second subquadrate, pointed towards base, its basal nervure sinuate. Stigma elongate, its apical three-fourths lying within the marginal cell. Tegulæ round, polished, honey-yellow. Legs pale honey-yellow, thinly clothed with whitish hairs, calcaria fuscous. Abdomen elongate-ovate, petiole subpyriform, second segment shining, feebly and remotely punctured, apical margins of all the segments castaneous, thinly fringed with pale yellowish pubescence. Length 4½ lines; expanse of wings 8½ lines.

Hab.—Texas. (Belfrage.)

Agama attenuata, n. sp.

♂.—Uniform dark honey-yellow; head round, shining, eyes large, prominent antennæ honey-yellow. Thorax elongate-ovate, shining, finely punctured, disc of mesothorax elevated, sides closely punctured; metathorax closely and finely reticulate, gradually roundly truncate. Wings moderate, hyaline, with a faint fuscous cloud in the apical region, marginal cell ovate, truncate at tip, first submarginal large, second very small subtriangularr, eceiving the second recurrent nervure before the middle. Stigma large, yellowish, lying almost wholly within the marginal cell. Tegulæ minute, pale honey-yellow. Legs pale honey-yellow, thinly clothed with concolorous hairs. Abdomen elongate, petiolate, petiole one-third the length of entire abdomen, pyriform, densely punctured; second segment finely punctured, third castaneous. Entire insect sprinkled with erect whitish hairs. Length 3 lines; expanse of wings 5 lines.

Hab.—Texas. (Belfrage.)

NOTE.—"*Subdivision II.*" should have been inserted on page 233 of the "Synopsis," immediately before species 21 (*Orcus*), and "*DIVISION II,*" on page 248, immediately before species 77 (*propinqua*). By some unaccountable oversight they were omitted.

Notes on North American TENTHREDINIDÆ, with descriptions of new species.

BY EDWARD NORTON.

Abia Kennicotti, Norton.

Var.—Color wholly greenish-blue, with metallic reflections, hairs blackish; fine cinereous hair is visible in certain lights on all the segments of the tergum; tarsi whitish; wings distinctly clouded on the second marginal and the upper half of third submarginal cells, the basal band as in other specimens; apical edge of all the segments of the tergum whitish.

Hab.—Texas. (Belfrage.) One specimen.

PTENOS, nov. gen.

Ptilia, Sec. 2. Norton, Trans. Am. Ent. Soc. ii, p. 367. 1869.

Tenthredinidæ, Subfam. 2, Div. E.—Wings with one marginal, appendiculate cell and four submarginal cells, the second receiving two recurrent nervures; the second cell is long and the third is wider than high; lanceolate cell petiolate. Under wing not appendiculate, and with two inner cells. Antennæ 3-jointed, slender, furcate in males, ciliate; maxillary palpi 4-jointed. Legs as in *Ptilia;* tarsi without processes beneath, not dilated, first joint longest; tibiæ with two apical spurs, no side spurs.

Ptenos texanus.

Ptilia texana, Norton, Trans. Am. Ent. Soc. ii, p. 367, ♀ ♂. 1869.

Texas. (Coll. Am. Ent. Soc.)

Ptenos niger, n. sp.

♂.—Length 0.20; br. wings 0.46 inch.—Color black; antennæ not as long as thorax, slender; third joint furcate, with long coarse ciliæ, bent at tip, piceous; a piceous spot on each side of thorax, the edges of basal plates, of first segment, and of each segment of venter, piceous; palpi pale; nasus and labrum fringed with white hair; abdomen thick; legs blackish-piceous, with the apex of femora and most part of tibiæ pale, their base piceous; wings hyaline, basal half violaceous, sub-obscure, stigma piceous.

Texas. (Coll. Am. Ent. Soc.)

Ptenos nigropectus, n. sp.

♂.—Length 0.22; br. wings 0.46 inch.—Head, most part of thorax and apex of tergum black; tegulæ, collar, anterior angle, sutures of metathorax at sides, and most of abdomen yellow-red; the very broad membranous notch waxen whitish; the four anterior legs yellowish below the tips of femora, black above; hinder legs black, becoming piceous below the femora; stigma and costal space yellowish, basal half of wings smoky-yellow, apical half clearer, nervures blackish; antennæ furcate, ciliate, slender, shorter than thorax, ciliæ black.

Texas. (Coll. Am. Ent. Soc.)

Hylotoma McLeayi.

Larva.—Length about one inch; width 0.16 inch. Head not large, pale green about the mouth, dark green above; two black eye spots and two longitudinal lines above. Body white, with a pale green tint; an indistinct darker green stripe down the middle of back; on each side of this a row of eleven yellow spots, one on each segment, and a similar row on each side of body above legs but not corresponding with those above; five rows of black dots on each side, viz. three rows of dots down the back, between and outside of the yellow dots, one row of eleven larger dots along each side of body in middle, and another row of eleven on each side between the yellow dots above legs. Legs twenty-two number, wholly green, the anal pair used in walking. Anal segment pale green. When at rest or disturbed it rolls spirally, the head outward and tail upon back. Feeds separately, one on a leaf above, eating the outer edge.

Connecticut. Found for successive years on the Chinese honeysuckle. July 17th, spun dark brown cocoons on the ground near the surface; came forth July 22nd of the following year.

Hylotoma dorsalis, Klug.

Much like *H. scapularis*, but more slender. Ciliæ on antennæ black; antennæ channeled above; scutel wholly rufous; anterior pair of femora and tibiæ yellow-red; their tarsi black in ♀, pale before in ♂; wings violaceous, a distinct darker spot covering the whole of marginal and part of submarginal cells; first recurrent nervure received near the first submarginal vein, second near the second vein. In *scapularis*, the first is received in the middle of cell.

Mexico. Two ♂ ♀ specimens. (Coll. Am. Ent. Soc.)

Hylotoma lepida, Klug.

This has a little of black on the inner orbits, and the tips of all the tibiæ black; the ridge of nasus forms a deep triangular enclosed basin between the antennæ.

Mexico. One ♂ specimen. (Coll. Am. Ent. Soc.)

Hylotoma consobrina, n. sp.

♀.—Length 0.40; br. wings 0.80 inch.—Antennæ clavate, black, with the two basal joints pale; head, thorax and the four and a half basal segments of abdomen brown-yellow; mouth whitish; the three and a half apical segments of tergum black; legs yellow, the middle of all the femora, the apical two-thirds of all the tibiæ, and all the tarsi black, except the basal two-thirds of the first, which is pale; spines yellow; less of black on the anterior femora; wings blackish at base and tip beyond the stigma; a broad yellow band across the middle; nervures the color of bands; body slender; ridge between antennæ flattened so as to form a triangular enclosed space.

Mexico. One specimen. (Coll. Am. Ent. Soc.)

Cladius æqualis, n. sp.

♂.—Length 0.22; br. wings 0.45 inch. Antennæ long and slender (about 0.18 inch), quite pilose, third joint a little shorter than fourth, a little swelled at base beneath, apex of joints 3—6 swelled; final joint of maxillary palpi ovate,

much larger and rather longer than the preceding; face on each side of ocelli channeled; a ridge, channeled through the centre, passing down between antennæ; claws with a strong inner tooth near middle. The whole body shining black, palpi and legs below knees whitish, anterior legs tinged with rufous, hinder tibiæ blackish at tip; wings hyaline, a smoky cloud passes across upper wings from base of stigma to tip of inner apical cell and from thence along lanceolate cell to base of wing; outer cross-nervure of lower inner underwing cell coincides with that above it.

Farmington, Conn. Four ♂ specimens.

Pachylota varicolor, n. sp.

♀.—Length 0.48; br. wings 0.94 inch.—Color shining black, with the abdomen, except at base, yellow red; a blackish band, broken in middle, across first and second segments; the anterior angle, basal plates and base of venter, white; wings violaceous-brown, their basal third clear. Head not as wide as thorax, closely ciliate with greenish-cinereous hairs; antennæ short, not as long as to scutel, clavate, densely ciliate with cinereous hair, seen from the side a slight process near the base of third joint beneath; all the palpi 4-jointed, the second and third maxillary globose; ocelli nearly in a straight line, or an obtusely flattened triangle. Head and body polished, pleura smooth, with a patch of grey hair in middle. Abdomen rather long, rounded. Legs stout; tibiæ simple, with end spurs; tarsi with processes beneath, first joint nearly as long as all the rest, joints 2—4 short and stout; claws strongly cleft. Upper wings long, marginal appendix large, first submarginal cell prolonged on the costa; second receiving the first recurrent nervure on the first cross-nervure, and the second near its middle; third cell twice as long on the marginal vein, its outer cross-nervure bent in the middle nearly to a right angle with a short incomplete nervure arising from its outer angle; lanceolate cell petiolate, its petiole long; under wings not appendiculate, with two inner cells, the upper cell bent outward, with an incomplete nerve as in the upper wing; a small lanceolate cell at base of wing.

Mexico. Two specimens. (Coll. Am. Ent. Soc.)

Pristiphora identidem.

Pristiphora identidem, Norton. Trans. Am. Ent. Soc. i, p. 77. ♀.
Pristiphora idiota, Norton, Trans. Am. Ent. Soc. i, p. 77. ♂.

These prove to be the same species. Mr. W. C. Fish (Packard's Guide, p. 217) bred the larvæ on the Cranberry on Cape Cod, Mass. Larva with seven pairs of abdominal feet, (20-footed), long, cylindrical, smooth, about 0.30 inch in length; when full-grown dark green, with two lighter green stripes running from head to the tail; head of a lighter color. Cocoons were spun June 20th, at the surface of the ground; imago came forth June 29th.

Nematus trilineatus, Norton.

Larva.—20-footed, slender, bright green, palest at head and tail, with five rows of black dots down the back, the outer row on each side irregular and with intervals; another row of black dots on each side above the feet; the three anterior pairs of feet black at the base, middle and tip.

Farmington, Conn. First seen upon the Weeping Willow (*Salix*

tristis) about August 1st, in immense numbers, almost stripping large trees. They begin upon the outer edge of the leaf and eat all except the inner midrib. They are very sensitive to disturbance, very lively and are generally found with the hinder part of the body bent up over the back, and holding by the forward pair of feet only.

A great number of the insects were found flying about the trees August 19th, about ten males to one female. The males are almost wholly black upon the thorax.

Nematus chloreus, Norton.

Variety ♀.—The antennæ piceous beneath toward the tip and the labrum white.

Texas. One specimen. (Coll. Am. Ent. Soc.)

Emphytus Bollii. n. sp.

♀.—Length 0.56 inch.—Allied to *tarsatus*. Color shining black; antennæ black, with the three apical joints and a dot on the tip of fourth above white; an obscure line beneath; tip of apical joint black; tegulæ white; scutel black; legs white, with their coxæ, the four anterior femora, apical two-thirds of the hinder femora, a spot at tip of two anterior tibiæ and the tips of the four hinder tibiæ black; claws and tips of claw-joints black; wings smoky-hyaline; a white spot at base of stigma.

Texas. (J. Boll.) One specimen.

Antennæ more slender than in *tarsatus* and the head not so wide.

Emphytus maculatus, Norton.

Larva.—(Riley, Prairie Farmer, May 25, 1868; American Entomologist, i, p. 91, fig. 76. Packard Guide, p. 221, fig. 147). Feeds on the Strawberry leaf. "Length 0.60—0.65 inch.—Somewhat translucent. General color light dirty yellow, with a glaucous shade along dorsal and subdorsal regions, inclining often to deep blue-green on the thoracic segments; minutely wrinkled transversely. Venter light glaucous. Legs 22 (6 pectoral, 14 abdominal and 2 caudal), of the same color. Head more yellow than body, with usually a dark brown spot above, one nearly of the same size on the upper front and two smaller ones on each side, joined by a brown line, the anterior spot being lower than the other; these two are sometimes blended, and there is but a triangular spot on top of head. The depth of shading on the body varies.

Pupa.—A dirty glaucous color, the members being somewhat lighter in color than body."

These larvæ form two broods in the year—in May and July. The perfect insect appearing in April, May and August. They eat innumerable small holes in the leaves. When not feeding they rest, curled up spirally, on the under side of the leaf. The eggs are deposited in the stem of the plant and cause it to swell a little. In some places they have caused great damage to the strawberry plants.

Dictynna cordoviensis, n. sp.

♂.—Length 0.18; br. wings 0.42 inch.—Antennæ rather longer than head and thorax, 10-articulate, slightly clubbed, as in *Athalia*, joints enlarging to apex, quite bent, as in *Sciapteryx*, final joint obtuse. Eyes quite protuberant, approaching below. Head narrow, concave behind, no distinct marginal edge on border of occiput, which round towards neck from eyes; a deep channel on each side of ocelli and a basin below the lower ocellus; clypeus depressed, narrow, very shallow, margin straight; labrum rather pointed; mandibles with no inner teeth. Abdomen as in *Hylotoma*, short, flattened, obtusely rounded at apex. Spurs of tibiæ short; claws simple. Wings broad; one marginal, appendiculate cell; first submarginal long, ovate, its nervure dividing from second broken, third longer and wider than second; first recurrent nervure received near base of second cell; lanceolate cell petiolate, very small, placed opposite the inner apical nervure; under wing with a large appendiculate cell, one inner cell beneath the marginal, no lanceolate cell, outer cells all open. Head and antennæ black; metathorax, pectus and abdomen above, mostly blackish; labrum, mesothorax, scutellum and pleura, yellow-brown; middle of each segment of tergum and most of venter, indistinctly brown; coxæ, femora, anterior tibiæ and tarsi, yellow-brown; remainder of legs blackish; wings smoky, subhyaline, a minute black dot in middle of brachial and second submarginal cells.

Cordova, Mexico. (Prof. Sumichrast.) One ♀ specimen.

Dictynna politus. n. sp.

♂.—Length 0.18; br. wings 0.42 inch. More slender than *D. cordoviensis*; form of head and sculpture the same; (antennæ wanting); head and body shining black; legs yellow-brown, tips of femora and tarsi blackish; wings subviolaceous, neuration as above.

Cordova, Mexico. (Prof. Sumichrast.) One ♂ specimen.

Hemichroa albido-variata, n. sp.

♀.—Length 0.35; br. wings 0.70 inch.—Color black, the edge of nasus, labrum tegulæ, collar, anterior angle, a stripe on each side of anterior lobe of thorax, and a band across four basal segments of tergum, wax-white; edges of the three apical sagments waxen; legs whitish, a black band on the hinder femora and the hinder tarsi blackish above. Antennæ moderate, not slender, filiform, joints of nearly equal length and size. The two basal joints very short and deeply set, third rather the stoutest; lower ocellus in a deep basin, nasus deeply notched; lower half of face and the pleura with cinereous hairs: remainder of body shining; the head nearly as wide as thorax; body quite thick and stout; the first tarsal joints rather arcuate, with processes beneath. Claws cleft; wings hyaline, faintly smoky, stigma and costal nervure brownish; second submarginal longest, receiving the two recurrent nervures, third of nearly equal width; lanceolate cell contracted; the under wing with two inner cells, lanceolate cell retracted.

Texas. One specimen. (Coll. Am. Ent. Soc.)

Hemichroa fraternalis. n. sp.

♂.—Length 0.30; br. wings 0.60 inch.—Shining black, more slender than *albido-variata*; tegulæ and anterior angle piceous; legs pale, with the basal one-third of femora and the coxæ black, hinder legs mostly black; sculpture and wings as in *albido-variata*, of which it is very probably the male.

Texas. (Belfrage.) One specimen.

Dolerus similis, var. **yukonensis,** Norton.

This species from Alaska is a little smaller than specimens from the Atlantic Coast, but agrees with them precisely in form and sculpture. The difference in color may be specified as follows :—In *similis*, the thorax is black, with the anterior angle and anterior lobe of mesothorax partly rufous. At times the anterior angles are black. In variety *yukonensis* the whole thorax is black, but in one specimen the anterior angle is rufous. A ♂ specimen has the mouth pale and the basal half of the two hinder tibiæ yellow. The inner claw tooth is stouter in the ♀ and rather more feeble in the ♂ than in *similis*.

Dolerus distinctus, n. sp.

♀.—Length 0.28; br. wings 0.56 inch. Rather short and stout; head and thorax coriaceous, with coarse punctures, the whole of pleura coarsely pitted, the pits of equal size on the pro- and metapleura, as in middle; about half as large as in *similis*; body with quite sparse whitish hair. Color black; tegulæ, prothorax, a spot in middle of anterior lobe of mesothorax, a band across side lobes from scutellum to wings, a stripe across the metapleura from anterior wings, and a band across the apical half of segments 2—5 of tergum, yellow-red; legs apparently all of one color; wings blackish-hyaline.

San Francisco, California. (H. Edwards.) One specimen.

Dolerus coccinifera, n. sp.

♀.—Length 0.50; br. wings 0.95 inch.—Head back of ocelli polished; face about and beneath ocelli very coarsely punctured; labrum subpolished; nasus incurved; mandibles punctured above; remainder of body polished, except the pleura, which is coarsely pitted; inner spur of anterior tibiæ bifid; claws with a strong inner tooth near middle. Antennæ, head, a V on anterior lobe of mesothorax, scutel, metathorax, basal plates, pleura, pectus, terebra sheath and legs, black; mesothorax, anterior angle, neck and abdomen coccineous; spurs yellowish; wings violaceous, obscure, nervures black, a clear spot at extreme base of wings, lines leading to the bullæ clear; first submarginal cell nearly circular and much contracted at the cross-nervure.

Near San Francisco, California. (H. Edwards.) Several specimens. This fine species seems to be a variety of *tejonensis*, from which it differs in having the clypeus notched and the pleura more coarsely pitted, and the scutel, metathorax and pleura black.

Selandria Snmichrasti, n. sp. (Sec. 1, Tribe 1.)

♀.—Length 0.25; br. wings 0.50 inch. Rather stout: antennæ moderately swelled in middle, the four apical joints diminishing in size and length, final joint pointed; no sutures at sides of ocelli, a lengthened pit back of each upper ocellus, three little pits back of antennæ; nasus wide, margin subsinuate, a little protuberant in middle; surface shining, covered with whitish hair; inner claw tooth near the tip, long, appearing bifid. Color of head back to neck, pro- and mesothorax, scutel, tegulæ and collar, yellow-red; remainder of body shining black; three little dots back of antennæ, cheek, labrum and palpi, black; legs black, the two or three basal joints of tarsi clear white; wings subobscure, blackish, lower half of stigma brownish; first submarginal cell rather long, se-

cond submarginal cross nervure receiving the recurrent nervure at the intersection of second and third cells, lanceolate cell petiolate, under wing with no inner cells, its marginal cell with a small appendiculate cell at the tip.

Cordova, Mexico. (Prof. Sumichrast.) One specimen.

Selandria caryæ. Norton.—Packard's Guide, p. 224, 1868. (Sec. I, Tr. 2.

♀.—Length 0.25; br. wings 0.40 inch.—Antennæ moderately enlarged in middle, first and second joints of equal length, four apical joints short, together about as long as the two preceding, the whole quite bristling with coarse hair; head polished, eyes widely separated, a deep irregular fissure back of each upper ocellus, no channels at sides of ocelli, three smooth basins back of base of antennæ, having in the centre of each a minute deep pit; nasus wide, truncate; claws of tarsi apparently bifid. Color shining black; pro- and mesothorax and scutellum rufous, apex of the latter black; nasus and legs white, the tarsi blackish; base of coxæ and a line down the upper side of legs black; upper wings subviolaceous; first submarginal cell rather ovate, longer than wide; lanceolate cell petiolate; under wings with two marginal cells and one submarginal inner cell (all the other species have one discoidal inner cell and no submarginal), all the outer cells closed as in figure 3 (*Trans. Am. Ent. Soc.* i, p. 151), the bounding nervure not touching the margin; the submedial cell is without cross-nervure, but does not reach the margin of wing, and the lanceolate cell is short.

♂.—Antennæ (one specimen) 10-jointed, apical joint minute; lower half of inner orbits white; anterior legs wholly whitish, also the middle tibiæ; under wings with one marginal and no inner cell, formed as in figure 2 (ibid.) with no cross-nervure in submedial cell.

Farmington, Conn. The wings present a good many supplementary nervures and irregular cells. The first marginal of one wing has two additional cross-nervures; on another wing are two additional discoidal cells. One under wing outer cell has three outer nervures, bent and overlying each other.

The larvæ feed on the Hickory (*Juglans squamosa*). They are found upon the under side of the leaf, sometimes fifteen or twenty on a leaf, which they eat from the outer extremity inward, often leaving nothing but the strong midribs. They cover themselves wholly with white flocculent tufts, which rub off when touched, leaving a green, twenty-two legged worm about 0.75 inch when full grown, darkest above and with indistinct blackish spots on the sides. The head is white with a small black dot on each side. Specimens taken with the leaves July 4th, went into the ground about July 20th. The cocoon is formed near the surface of the ground and covered with earth and sand drawn together. Four specimens came forth about August 22nd, all seeming very small for so large larvæ.

Dr. Packard (Guide p. 223) mentions a similar larva feeding upon the butternut, which may prove to be the same with this.

Selandria longipennis, n. sp. (Sec. 1, Tribe 2.)

♀.—Length 0.26; br. wings 0.68 inch.—Antennæ, except two basal joints, wanting. A suture like pit back of two upper ocelli, no suture at their sides, but strongly channeled; three pits back of antennæ; nasus rather wide, margin truncate; labrum rounded; head and body shining, not highly polished; legs thickly covered with white hairs; inner claw teeth long, just within the tip. Black, palpi black; nasus, labrum, apex of all the femora, basal third of the tibiæ and the basal tarsal joint, clear white; anterior claw joint waxen; wings very long, not very wide, upper pair blackish, semi-obscure, marginal vein bending rapidly up to the costal margin, the whole vein forming almost a half circle; lanceolate cell petiolate; lanceolate cell of under wing long, extending nearly to tip of wing, receiving the cross-nervure near its tip; traces of broken outer nervures at ends of nerves.

Near Cordova, Mexico. (Prof. Sumichrast.) One specimen. The neuration of the under wing is quite unlike any other species of this Section (1).

Selandria mexicana, Norton. (Sec. 1, Tr. 2, Div. A.)

Variety.—Larger than the type specimen, being 0.37 inch long. The wings are obscure violaceous, and the color of legs piceous instead of whitish.

Mexico. Three ♂ ♀ specimens. (Coll. Am. Ent. Soc.)

Selandria fascipennis, n. sp.

♀.—Length 0.30—0.35; br. wing 0.68—0.72 inch —Color yellow-red; antennæ, a spot about ocelli, palpi, and the three apical segments of tergum, black; legs yellow-red, the apical half of all the tibiæ and all the tarsi, except a yellow band on the first joint, black; wings black, very black at base, with a wide yellow band across the middle, including most of stigma, narrowest above. Antennæ, the two basal joints pale, of nearly equal length, the four apical joints decreasing rapidly in size and length; head rather thin, nearly as wide as thorax; ocelli in a small triangle, the lower ocellus in a deep small basin, three little round pits above base of antennæ; hinder coxæ twice as long as those preceding; claws strongly cleft, with a large, blunt inner tooth; wings rather long, first recurrent nervure received near the middle of second submarginal cell, and the second nervure near the base of third; lanceolate cell rather large; under wings with an appendiculate nerve on the marginal cell.

♂.—The male has the antennæ pale beneath, and the first and second joints partly black; the under wings are without inner cells and have the outer cells closed as in *Strongylogaster mellosus,* ♂.

Mexico. Six ♂ ♀ specimens. (Coll. Am. Ent. Soc.)

Selandria inæquidens, n. sp.

♀.—Length 0.25; br. wings 0.50 inch.—Color piceous red, with the head, two stripes on the side lobes of thorax, metathorax and breast black; abdomen piceous, the apex of each segment darkest; a spot on each side of nasus and the labrum pale; tegulæ and edge of collar white; legs the color of body; wings smoky-yellowish. Antennæ black, short, formed as with *halcyone,* the apical joint not decreasing suddenly in length; face below the occiput quite depressed, rugose; nasus with a shallow angular notch; claws deeply cleft; under wings with one inner cell; outer cells open.

Texas. Two specimens. (Coll. Am. Ent. Soc.)

Selandria albicollis, n. sp. (Sec. 1, Tr. 2, Div. B.)

♂.—Length 0.30; br. wings 0.60 inch.—Color black, shining; a spot in the middle of labrum, tegulæ, edge of collar, a round dot in the middle of the anterior angle, white; the four hinder legs black above and brownish before; anterior legs whitish-brown, their coxæ and femora above, black; inner claw-tooth slender, not prominent; wings hyaline, the costal and basal nervures white; first submarginal cell long oval, basal corners rounded; the outer under wing cells all open, their single inner cell subtriangular, their lanceolate cell retracted.

Texas. (Belfrage.) One specimen.

Selandria q. alba, Norton.

♂.—(Sec. 4, Tribe 4).—About seventeen male specimens of this species examined. All have the under wings without middle cell; all the outer cells closed, the bounding nervure closely following the margin of the wing, the inner ends of marginal, submarginal and discoidal outer cells all forming nearly a straight line; lanceolate cell reaching the margin of wing; the four anterior legs, below the middle of femora, are yellow-white; the apical two-thirds of hinder femora and the basal two-thirds of the tibiæ the same color. The ♂ of my *S. obsoletum* appears to be identical with this.

♀.—(Sec. 4, Tribe 3).—The under wing middle cells of this seems to be quite variable; sometimes there are two inner cells on the wings, sometimes one and at times none.

This may easily be distinguished from all other species of this Section (4) by the form of the lanceolate cell, which does not coincide at tip with the cross-nervure above, as in figure 1 (ibid. p. 219), but extends a little beyond it, while in all others, the lanceolate cells does not reach it, being shorter.

Selandria flavipes. Norton. (Sec. 5.)

♀ var.—Length 0.25; br. wings 0.60 inch.—Differs in having all the tarsi black, and the wings more clouded. The first submarginal is incomplete as in many of our specimens.

Cordova, Mexico. (Prof. Sumichrast.) One specimen.

Selandria coccinata, n. sp. (Sec. 5.)

♀.—Length 0.25; br. wings 0.60 inch.—Body stout; antennæ long, stout, joints diminishing equally in length and size; lower ocellus in an oval well defined basin, channels at sides of ocelli curved, each rising in a pit back of each upper ocellus, and eding in a little deep round pit back of each antenna, but separated from pits of antennæ; the bottom of these pits flat, with a central prominence; nasus broadly truncate at margin; surface of head dull, rather coriaceous, of body shining, not polished, nor punctured; inner claw tooth stout, nearly as large as outer. Head black; basal joint of antennæ, nasus, labrum and palpi, white; thorax and abdomen bright coccineous, with a round spot on each side of scutel, sutures of metathorox, a double spot on pectus, and ovipositor sheath, black; under a lens the red color on the thorax is seen to color the prominences and fill the sutures, while the spaces between are waxen; the black spots are well defined; legs white, the intermediate tarsi and hinder tibiæ and tarsi blackish; wings slightly clouded, nervures black; all the angles of first submarginal cell rounded; a dark cloud around the lower shoulder

of lanceolate cell, which is without cross nervure; under wings with two inner cells, their lanceolate cell long and receiving the cross-nervure within the tip as in *flavipes*.

Var. ♀.—First joint of antennæ black; all the femora with a wide black band.

Near Cordova, Mexico. (Prof. Sumichrast.) Two specimens.

Macrophya excavata, Norton.

Var. ♀.—The basal half of third and the two basal joints of antennæ rufous; labrum and two spots above, part of tegulæ, base of metathorax, first visible segment of tergum rufous, the whole edge of collar, a large spot beneath tegulæ, basal plates and tips of tergum, white; legs as in *excavata*; wings more smoky, under wings without inner cell, their lanceolate cell not coinciding with cross-nervure, but withdrawn as usual in Macrophya; sculpture and form as in *excavata*.

Texas. (Belfrage.) One specimen.

Lophyrus fulva, n. sp.

♀.—Length 0.30; br. wings 0.65 inch.—Antennæ 13-jointed, black. Color yellow-brown; a lunate mark through ocelli, touching base of each antenna, scutel, metathorax and band on first segment of tergum, spot on breast and lower half of venter, black; legs pale yellowish, tarsi tipped with black, hinder tarsi darkest; wings faintly smoky. Antennæ short, quite thickened in middle, tapering to ends, subserrate beneath; head not as wide as thorax; body quite stout; spurs simple; lanceolate cell of wings closed in middle, supetiolate, without oblique cross-line.

Texas. One specimen. (Coll. Am. Ent. Soc.)

Cephus cinctus, n. sp.

♂.—Length 0.28; br. wings 0.56 inch.—Color black; a square spot on the nasus, a spot curving around each lower orbit and on the middle of each mandible yellow; tegulæ and a spot under each wing, under the neck, on pectus, the sides of basal plates, an irregular dentate band widest at sides, on the first, second and fourth and on the sides of third, fifth and sixth, and apical segments of tergum, and on the apical edge of each segment of vertex, yellow; legs yellow, growing reddish towards the tarsi, trochanters and the anterior pair of femora before, black; wing smoky. Antennæ slightly clavate, 18-jointed.

Colorado. One specimen. (Coll. Am. Ent. Soc.)

Xyela ænea, n. sp.

♂.—Length 0.30; br. wings 0.72 inch.—Antennæ black, head and thorax bronze, with purple reflections, greenish about the face; labrum and palpi pale reddish; abdomen shining steel-blue; legs ferruginous, hinder tibiæ blackish. Third joint of antennæ three times as long as the six remaining joints together, basal joint arcuate; head and thorax delicately, closely sculptured; claws with a strong inner tooth; wings hyaline, nervures as in *tricolor*.

Texas. Five specimens. (Coll. Am. Ent. Soc.)

This may be a variety of *tricolor*. On one of the wings is a supplementary marginal cell.

Description of a new species of MASARIS, from California.

BY E. T. CRESSON.

Masaris Edwardsii, n. sp.

♀.—Black, opaque, head and thorax clothed with a short blackish pubescence; orbits, filling up sinus of eyes and slightly interrupted at summit, a subtriangular spot on middle of front, clypeus except a large U-shaped black mark on disk, and mandibles except tips, pale lemon-yellow; the black mark on clypeus is sometimes slightly confluent above with the black on each side of the face, thus forming a slender yellow T; apex of clypeus deeply arcuate; labrum pubescent, fuscous, edged laterally with yellowish; antennæ short, clavate, blackish above, fuscous or fusco-testaceous beneath, the three or four basal joints beneath more or less yellowish; anterior and upper margins of prothorax, confluent in front and broad anteriorly, two short lines or dots on disk of mesothorax, broad posterior margin of scutellum, sometimes two dots on postscutellum, metathorax except two large spots on posterior face, a large irregular mark on each side of pleura, and the tegulæ, all lemon-yellow; metathoracic spines long, slender, subacute; wings fusco-hyaline, the marginal and first submarginal cells darker; spot on coxæ, femora except base and stripe behind, tibiæ and tarsi lemon-yellow, tarsi dusky beneath, their tips honey-yellow; abdomen very finely and densely punctured, segments 1—5 each with a broad continuous apical lemon-yellow band, that on first segment uneven anteriorly, sometimes enclosing two black dots, those on remaining segments sometimes slightly emarginate on anterior middle; apical segment broadly rounded at tip, with a broad central band; venter banded with yellow, the apical segments with two yellow spots. Length .40—.45 inch.

♂.—Longer than ♀, shining, more thickly pubescent; orbits, filling in sinus of eyes and slightly interrupted at summit, a large triangular spot on middle of front sometimes confluent on each side above with orbits, clypeus, mandibles and basal joint of antennæ, flesh-color or yellow; middle of front prominent, with a central black dot; clypeus smooth, convex, apex deeply arcuate; labrum yellow; antennæ longer than head and thorax, pale yellow tinged with fulvous

at tip, a stripe on first five joints above, sometimes only on fourth and fifth, and lateral half of following joints except margins, black or fuscous, first joint short, robust, second joint very short and transverse, third fourth and fifth joints long, cylindrical, subequal, the third being a little shorter than the fourth which is equal in length with the fifth, sixth joint broadly dilated towards apex, about as long as third, seventh joint very short and as broad as the sixth, remaining joints narrower and coalite, the sixth and following joints forming the club are flattened above and concave beneath, the outer margin deeply erose; thorax marked as in ♀, except that the yellow markings are less heavy, the pleura has a large ovate spot, the scutellum is margined posteriorly from base of wings, sometimes interrupted, the postscutellum has sometimes a short discal transverse line, the metathorax has sometimes a double spot on basal middle and a narrow line covering lateral angles, all yellow; wings yellowish dusky, paler than in ♀, tip of marginal cell fuscous; legs colored as in ♀, the intermediate tibiæ suddenly dilated anteriorly both on outer and inner edge, also middle of their femora beneath; abdomen elongate, shining, base of segments depressed, the bands on segments 1—4 narrow, slightly dilated laterally, those on the five basal segments are squarely emarginate on each side anteriorly, sometimes only those on segments 2—4 are slightly emarginate on each side anteriorly, the bands on two or three apical segments very broad; apical margin of terminal segment subarcuated with prominent lateral angles and beneath with two stout subacute black teeth; venter broadly banded with yellow, the second segment prominent on basal middle, the third segment transversely elevated with a stout subacute central tooth pointing posteriorly, apex with a patch of dense pale pubescence. Length .50 inch.

Hab.—California. Four ♂ ♀ specimens were collected by my friend Henry Edwards, Esq., of San Francisco, to whom this interesting species is respectfully dedicated; and one ♂ specimen was collected, and kindly presented to the Society, by Lord Walsingham.

This fine species is more closely allied to *zonalis* than to any of the other species. It is larger and more robust than *zonalis*, with broader abdominal bands in ♀, while the antennal club and apex of abdomen in ♂ are entirely differently shaped, the deeply erose inner edge of the former being a ready distinguishing character, quite different from anything to be seen in any of the other five species.

Descriptions of North American NOCTUIDAE, No. 2.

BY AUG. R. GROTE.

MARASMALUS, *Grote.*

In this genus, which is related to Eurhipia and Ripogenus, the body parts are rather square and compact. Head concealed from above. Antennae short, shortly bipectinate from the base outwardly. Labial palpi a little dependant, projected straightly forwards, closely scaled. Caputal scales massed on each side of the vertex, towards antennal base. Thorax with an anterior dorsal tuft, and a double crest behind. Tegulae with raised scales. Abdomen recurved at tip, compact, hardly exceeding the hind wings; anal segment trigonately tufted; two pre-anal dorsal segmentary crests. Legs short; spurs feeble. Wings at rest folded on themselves, ample, elongated, entire. Forewings with straight costal edge; hind margin roundedly oblique, a little exerted at median nervules. A pliant very evident median fold. (The neurational features cannot be examined at present from paucity of specimens.)

The singular species has the habit of folding the wings when at rest in such a manner as to conceal their true size.

Marasmalus ventilator. *Grote.*—♂.—Forewings pale dull olivaceous ochrey, washed with whitish, with narrow white lines and blackish and ferruginous blotches. Double basal arcuate white lines with blackish included space most deeply marked on costa. The wing is whitish before the faint dark arcuate median shade. Orbicular obsolete. Reniform, a white diffuse lunule with superposed included black dots connected by an arcuate line; above reniform a blackish costal shade which is apparently margined on either side by the t. p. line, composed of two widely separate narrow indistinct white lines. Beyond the reniform superiorly a bright ferruginous patch, and the costal region is ante-apically ferruginous with three white dots. Subterminal line faint, irregular, whitish, preceded on the fold by two blackish blotches. Terminal line black, fading inferiorly; fringes white, black dotted, blackish at apices and again medially. Hind wings pale blackish, with an irregular clear subterminal shade, a ferruginous patch at about the middle of the external margin and a blackish shade at anal angle; a black terminal interrupted line; fringes whitish. Beneath with obliterate markings, washed with whitish grey; primaries with the ante apical costal ferruginous shade; secondaries with black-

ish shade at internal angle with a discal mark and superposed costal blackish shade. Thorax beneath pale grey. Above the corporal tufts are deep ferruginous; anal hairs pale. Abdomen dark above; segments with pale edges. Above the veins of primaries tend to be picked out by pale scales. *Expanse*, 26 m. m. *Length of body*, 9 m. m.

Habitat.—New York; Andover, Mass.; "on fence with folded wings like Tettices (orthoptera)"—*Sanborn.*

PHYPROSOPUS. *Grote.*

Forewings with straight costal margin, entire; external margin rounded, oblique; the internal angle rounded; the wing is elongate, rather narrow, full outwardly posteriorly about median nervules. A submedian fold discontinued exteriorly. Veins 4 and 5 approximate at base, 5 from extremity of median vein, 3 a little removed. Cell open; a small accessory closed cell, its upper margin not angulated; from its lower angulation vein 6 is thrown off straightly opposite 5 to external margin; 7 and 8 arise together from its outer end, 7 to external margin, 8 to apex, 9 out of 8 shortly to costa; 5, 6, 7 divaricate. Subcostal nervules aggregated; 10 out of upper margin of accessory cell, very near 9; 11 out of subcostal nervure opposite 2. Hind wings with costal edge a little sinuate or centrally depressed, rising to rounded apices. Median vein 3 branched; 5 independant, 3 and 4 together, 2 thrown off much within the middle, nervules long. Squamation close and dense. Head with a dependant frontal tuft. Labial palpi projected straightly forward beyond the head, second joint thickly scaled, terminal joint slender, continuous with second, finely scaled, acuminate. Legs finely scaled with slender spurs. Antennae ♂ rather long, shortly bi-serrate, the serratures diminishing gradually to tips. Abdomen a little longer than hind wings, linear.

Phyprosopus callitrichoides. *Grote.*—♂.—Fuliginous or purplish ferruginous, primaries with mottled pale scales, a purple reflection terminally. T. a. line pale, angulatad on disc, obsolete superiorly; below the angulation very oblique, even, joining the internal margin near the base. Reniform obsoletely indicated by superposed dark dots. T. p. line very distinct, pale, even, a little bent. This line runs inwardly obliquely from apex to internal margin at the middle. It is geminated below to vein 7, at which point the inner line runs narrowly back to costa above the reniform. This inner line is the true t. p. line, the outer the propinquitous subterminal: fringes short. Secondaries pale ochreous, terminally with indistinct darker shadings and a pale line perceivable on internal margin. Beneath immaculate, pale ochreous. *Expanse* 21 m. m.

Habitat.—New York; Texas.

This little species seems at first sight allied to Calpe or Hemiceras. In outline it has a spurious resemblance to Coelodasys. From my note book this is the *Doryodes acutalis* of the British Museum Coll. and Lists; not, of course, Guenee's species.

PARGRAPTA, *Hübner.*

The wings are ample, long and angulate. Primaries with the apical angle acute. Below the apex the external margin sweeps inwardly, but is outwardly produced and full at the extremities of median veinlets, sloping again inwardly to the retired internal angle. Forewings with 12 veins. Veins 4 and 5 spring together from the median nervure, 5 a little bent at base towards 4; vein 3 a little removed from 4; these three nervules appear propinquitous at base, as if arising together. Discal cell open. A small accessory cell, from the lower angulation of which vein 6 is thrown off on external margin. Veins 7 and 8 are thrown off together from the outer angulation of the accessory cell; vein 7 on to the external margin, subapically; vein 8 on to the costal margin just before the real apex of the wing. Vein 9 out of 8 on to the costal margin, a short furcation. Costal veins approximate. Hindwings with the external margin slightly acutely projected below the extremity of vein 7; the margin appears slightly interspaceally scalloped, retires below this first subapical projection, rising again at extremity of median veinlets. Nervules long; discal cell open. Veins 3 and 4 arise together. Vein 5 is independant, and arise a little nearer the base of the wing.

The body is tolerably stout; abdomen bluntly terminated, a little recurved in ♂, no longer than secondaries. Palpi very slender, divaricate closely scaled; 2d joint elongate, obliquely ascending; 3d joint longer than usual, attenuate, porrected at right angles with the second. Head small. Legs rather short and slender, closely scaled; hind tibiae with a pair of central spurs longer than those at the apices of the joint. Antennae short and simple.

The general resemblance of P. decoralis to the Geometridae is very great. At first we seem to have a species of Selenia or Endropia before us. The squamation is somewhat thin and powdery.

Pargrapta decoralis, *Hübner,* Zutr. 91, 92.—♂ ♀.—Grey with a lilac hue, distinctly shaded with ferruginous, of varying tint. Usually the male is brighter ferruginous and less distinctly marked. Basal half-line distinct on costa. T. a line arcuate, distinctly inwardly notched on disc. Outer half of the median space, margined inwardly by the median shade, ferruginous; here

the pale annulate reniform is perceivable. T. p. line distinct, even, dark, with a narrow succeeding pale shade, projected opposite the disc, slightly sinuate inferiorly. Subterminal line dentate, faint, accompanied opposite the disc by vague broad ferruginous or bright shades. Secondaries with all the lines continuous. Median line distinct; outer transverse line (corresponding with t. p. line) vague, with succeeding ferruginous shades. Discal black dot and streak. Terminal lines double on both wings, subcontinuous, lunulated; fringes cut with ferruginous. Beneath paler with all the markings distinctly reproduced. The more ferruginous diffusely shaded specimens are also more evidently washed with purplish outside of the t. p. line. It varies in tint; the ferruginous shadings become almost blackish in some female specimens. *Expanse* 25 to 26 m. m.

Not rare in New York State; Mass.; Penna.

This species seems to mimic Endropia homuraria *G & R*, more than any other of the Geometridae. The paler ferruginous purply washed specimens have somewhat the tints of Choerodes.

Dr. Fitch's Hypena elegantalis is a synonym. According to Mr. Riley, such names should obtain, because they are "better known," or "for reasons repeatedly given," or "for reasons which it would be too tedious to give," etc., etc. (See the Fourth Missouri Entomological Report.) In this same report "moral objections" are found to Dr. Le Conte's List of Coleoptera and our own of the moths, and it charged that "indignation" is the sentiment that such works arouse in the breast of the "true naturalist." Meaning, of course, the editor of the aforesaid Annual. Setting aside the verbiage with which our most modern author clothes his grievance, and coming to the point, we are complained of for using the authority for the combined terms we retain, instead of using in every case the original authority for the species. Attacus cecropia, *Linn.*, is cited as a case in point on page 57. But the impression sought to be conveyed by Mr. Riley is a false one. The terms used for that species do not convey the same scientific idea. They are not, strictly speaking, identical. For, until 1865, it does not seem to have been proven that Platysamia cecropia afforded a distinct structural generic type. It seems to us an "injustice" to the original author of the combined generic and specific term, that he should not be quoted when his term is used. It is his property and, if it is used, he should be cited.

But Mr. C. V. Riley himself would not "carry out the law of priority too relentlessly." He "relents" when the species described in the reports as new, are found to be old discoveries. We are then asked to entirely ignore the original discoverer, to prefer Mr. C. V. Riley

to Zeller, Gueneé or LeConte. It requires a singular obtuseness to be "indignant" at a procedure which at least always recognizes the original description and a singular assurance to demand in the same breath a suppression of both description and describer.

MADOPA, *Stephens.*

Madopa interpuncta, *Grote.*—♂ ♀.—Primaries dark shaded pearly grey, finely irrorate with black scales, with three nearly equidistant transverse even brownish lines preceded by pale coincident shades. The first line nearer the second, while the third is slightly arcuate, continued from apices to internal margin within the angle. Between the first and second lines a black dot on the disc, the orbicular. Beyond, but approximate to the second line, a larger black dot, the reniform. A series of minute interspaceal terminal dots. These are more continuous on the pale secondaries, which show a discal dot beneath. Legs darker than the body parts and abdomen above. *Expanse* 20 to 22 m. m.

Habitat.—Central Alabama.

Outline and ornamentation of the European M. salicalis, but smaller, a little darker and at once distinguished by the discal dots.

BLEPTINA, *Guenée.*

Two species from the Atlantic district and the Gulf are contained in the collection. The antennae are simply pubescent, the palpi closely scaled, held free from the front, elevated and recurved at the tips, without sexual characters. The outline of the primaries is similar to Renia, but notably less exerted on external margin, while the costal edge is more depressed. The coloration is pale purplish-grey and the species in appearance resemble Agrotis, Caradrina, etc., while the ornamentation is but slightly modified from that of Renia.

Bleptina caradrinalis, *Guenée.*—♂ ♀.—Rather pale brownish grey, smoothly scaled, with a very light purplish shade, lines brownish; markings not very distinct except the subterminal line. Basal half line perceivable; t. a. line improminent, single, shortly waved. Median shade diffuse, continued, usually more prominent in the male, oblique, a little sinuate, touching the reniform. This latter, with the reduced orbicular, is usually black and contrasting in the female, whereas in the male it is deep yellowish, stained, with an included scale dot and ringed. T. p. line roundedly projected opposite the disc, finely dentate or waved, tending to mark nervular dots. Subterminal line geminate, even, prominent, with a stained pale central shade and accompanied by lateral brownish shadings which tend to become nervular on terminal space. The line is roundedly outwardly bent over the median nervules. Terminal interspaceal black dots; fringes pale. Secondaries paler towards the base, dark along external margin, with double dark shaded transverse lines, relieved by a paler external shade. Terminal black points and fringes as on primaries. Beneath the wings resemble secondaries above; discal dots dis-

tinct; primaries the darker. Palpi in both sexes pointed, recurved, rather pale or testaceous colored. *Expanse*, 25 to 30 m. m.

Habitat.—New York, Pennsylvania, Texas.

The female has the lines, except the subterminal, less distinct usually than the male and the ordinary spots often filled in with black. The specimens of B. caradrinalis from the Middle States measure 28 to 30 m. m.

Bleptina inferior, *Grote.*—♂ ♀.—Darker and of a different hue compared with B. caradrinalis. The reniform is creamy pale, as is the orbicular, subobsoletely black ringed and shows an inferior black included dot. The markings of its congener are reproduced by this smaller species but less distinctly. The color of the primaries is of a more bluish and darker grey, and they are more uniformly colored, hardly darker shaded terminally. The secondaries are much darker, almost wholly blackish; the lines imperceptible or obsolete. Beneath both wings blackish, the subterminal line alone barely perceivable. *Expanse*, 24 to 26 m. m.

Habitat.—Alabama, Texas.

Three specimens of B. caradrinalis (Belfrage legit) from Texas are as small (25 m. m.) as B. inferior, but differ from B. inferior by their color, the paler secondaries lined above and the characteristic appearance of the ordinary spots in both sexes; in all of which they exactly agree with the larger Northern specimens of their species. I have fourteen specimens of B. caradrinalis and five of B. inferior before me, all of which latter have their antennal stem a little darker above compared with B. caradrinalis.

HERMINIA, *Treitschke.*

I refer to this genus nine species, specimens of which, from the Atlantic district are contained in the collection before me. These fall into two groups in a wide sense. The first six species have in common a more or less apparent crooking of the male antennal stem towards the middle, where it is tufted. The structure of the labial palpi is subject to slight specific modification, but, except in H. morbidalis, the palpi do not afford any strong secondary sexual character. In this species the palpi, with their straight 2d and reduced 3d article, are directed upwardly, though not as strongly recurved as usual in the male; while in the opposite sex they are projected forwards. This character reminds us of Renia. In the remaining species the second article is bent. In H. laevigata the male palpi seem a little more densely scaled. In this group the species have a more or less strongly expressed resemblance to certain European forms. The second group consists of two small species which have the male antennae more or

less lengthily pectinate, without nodosity, tuft or crooking. In H. serraticornis, the larger of the two species, the ♂ antennae are more shortly pectinated, the antennus is longer, while in H. longilabris the male antennal pectinations are lengthy and finer. The female of this latter species has simple antennae. The structure of the labial palpi differs in the two species. In both they are exaggeratedly long. In H. serraticornis ♂ (♀ ignot.) they are obliquely ascending, the second joint is straight, the third a little recurved. In H. longilabris ♂. The palpi are disproportionately elongated, projected forward, separating towards the tips; they are more lengthily compressedly scaled and have a flattened appearance. They resemble the palpi of the European H. tentacularis. Both of these smaller and lighter species look excessively like Geometridae, a resemblance which is heightened by their antennal structure, while the color is that of the first group. My knowledge of the European forms does not afford me strict analogues to these two latter American species.

From the excellent descriptions in the eighth volume of the Species Genéral des Lepidoptéres, I am at once enabled to identify the three North American species described by M. Guenée. Beyond these I cannot find that our species have been intelligibly described. After having compared Mr. Walker's types of Lepidoptera in the British Museum Collection with the Lists, I find that little or no reliance can be placed on this author's original generic determinations. Where, therefore, his specific descriptions are not conclusive, it will be no injustice to omit any reference to them. We ought not to encumber our catalogues with a mass of apocryphal names, the existence of which tends to retard our knowledge of these insects by repressing our observations from a fear of synchronism.

Herminia laevigata. *Grote.*—♂ ♀.—Rather pale carneous brown, variably, more or less distinctly shaded with rich deep brown on the primaries above, which, in fresh specimens, show a purplish gloss. Squamation pulverulent. Basal half line obvious. T. a. line nearly perpendicular, followed by a more or less extended diffuse dark olivaceous brown shade, which, though usually extending to the small blackish elongated orbicular dot, is sometimes wanting. Reniform large, lunate, usually filled in with black scales which then broadly contrast; sometimes open with a darker encircling line. Behind the reniform and approximate, as usual in this genus, to the transverse posterior line with which it coincides in shape, is the diffuse median shade, sometimes entirely obsolete, sometimes very obvious, again lost in a deep concolorous brown shade which then precedes the transverse posterior line. T. p. line of the usual shape, arcuatedly projected beyond the disc, where it sometimes

shows a slight superior notch. Subterminal line distinctly geminate, with a pale centre, nearly straight, a little irregular, continued; it is somewhat bent as in Renia, and is accompanied superiorly by a more or less evident blackish shade. A very distinct series of terminal interspaceal black marks. Secondaries fuscous, with faint discal lunule and double lines, the subterminal followed by a pale shade and angulated before anal angle; black terminal marks as on primaries, but more linear and continuous. Thorax colored like primaries. Beneath with double lines and a discal dot on both wings; less distinct on primaries, and where, in dark specimens, the markings are sometimes lost. Male antennae ciliate, thickening at base towards the middle, before which is a very minute tuft, not very sensibly nodose or crooked. ♂ fore tibiae with a dense dark testaceous fascicle of hairs, which can be extended. *Expanse*, 35 to 40 m. m.

Habitat.—Atlantic District (Pennsylvania, Virginia, West Virginia).

The largest, most variable and richest colored of our species, and one which reminds us a little of Renia discoloralis. The transverse lines are always true to their specific characters, but the presence or absence of the median and accessory deep brown shades makes a great difference in the general appearance of specimens. Sometimes the m. shade and brown shadings accompanying the ordinary lines are entirely obsolete.

Herminia morbidalis. *Guenée.*— ♂ ♀.—Whitish grey sparsely sprinkled with olivaceous scales. Lines olivaceous, distinct. T. a. line a little irregular, continued, sometimes nearly even when it is also more diffuse. Reniform diffuse and well sized, olivaceous. The median shade is not always apparent; in some specimens it may be noticed, appearing as a diffuse preceding shade approximate to the t. p. line, widening inferiorly. T. p. line roundedly projected beyond the disc where it is sometimes notched, of the usual shape. Subterminal line distinctive, being composed of a series of blackish V-shaped nervular marks edged outwardly by sagittate white shades, the points acuminate on the veins which, on the terminal space beyond, tend to be marked by pale scales. A series of minute nervular black points. Secondaries paler, with the peculiar subterminal line of the primaries less distinctly continued, and a fainter internal line and discal mark. Palpi with the elongated second article straight; in the male obliquely ascending, third joint recurved; in the female directed more straightly forwards. Male fore tibiae with a pale ochraceous tuft. In this species the wings are ample; the external margin of primaries full and rounded. *Expanse*, 30 to 35 m m.

Habitat.—New York, Pennsylvania.

Early recognized by the sagittate subterminal line of the wings above.

Herminia pedipilalis. *Guenée.*— ♂ ♀.— Pale powdery olivaceous griseous. Lines narrow, even, dark olivaceous. T. a. line outwardly projected on subcostal nervure. Reniform spot faint, curved, linear. T. p. line somewhat acutely projected opposite the disc, otherwise of the usual appearance,

tending to be a little broader marked on costa. Subterminal obliquely rigid, linear, running from the extreme apices to internal margin within the angle, without accompanying paler shades, single. Usually this line is obliterate before the apices. Apical fringe touched with dark olivaceous; costal edge at apex with a small whitish mark. Secondaries pulverulent, rather darker than usual, with double transverse lines, the outer with external pale shade and angulated before anal angle; discal mark faint. Palpi recurved in both sexes, second joint bent, appearing a little shorter in the female. Male fore tibiae with a brush of blackish hairs not retractile as in the preceding species. *Expanse*, 28 to 32, m. m.

Habitat.—New York, Pennsylvania, Virginia.

Superficially this species resembles the European H. barbalis. The palpi are, however, differently held and shorter. The 2nd joint is straight in H. morbidalis and H. barbalis, where, in the female, the palpi are nearly straightly projected. The subterminal line is simple in H. pedipilalis; the lines are finer and the secondaries darker than in the European H. barbalis.

Herminia cruralis, *Guenée.*—♂ ♀.—Pale ochreous brownish or dark testaceous, with a light reflection. Wings proportionately short; external margin of primaries evenly rounded. All the lines dark, narrow, distinct. T. a. line perpendicular, even. T. p. line of the usual shape, nearly even, a little notched on the extra discal projection. Subterminal rigid, distinct, even, continued, running from costa before the apex to internal margin within the angle, succeeded by a very narrow, pale lined shade. Minute marginal linear points. Secondaries with double continuous lines. Beneath the wings are pale with powdery darker scales and double propinquitous powdery lines; black discal dots on both wings. Male fore tibiae with a fascicle of long scales, outwardly stained with blackish. Male antennae nodose. *Expanse*, 27 to 30 m. m.

Habitat.—Pennsylvania.

In color and appearance this species resembles the European H. tarsiplumalis, but is shorter winged and brighter tinted. As remarked by M. Guenée, the course of the t. p. line is similar to that in the much slighter H. grisealis.

Herminia marcidilinea, *Grote.*—♂ ♀.—A little larger and stouter than H. cruralis. Similarly colored and ornamented, but the squamation is more pulverulent. Lines hardly so distinct; t. a. line narrowly dentated or notched. Subterminal line running as in H. cruralis, but the line itself is obsolete, or nearly so, and an even, well marked, very pale shade replaces it, running across both wings. In its secondary sexual characters this species agrees with H. cruralis. *Expanse*, 31 to 33 m. m.

Habitat.—Pennsylvania, Alabama.

Closely allied to H. cruralis, but distinguishable from the different

appearance of the transverse lines of the wings above. The specimen from Alabama is a little darker colored, somewhat olivaceous. The squamation of the wings above in H. marcidilinea is powdery, with an admixture of pale scales.

Herminia obscuripennis, *Grote.*—♂ ♀.—Both pair of wings above are obscure dark blackish brown, the primaries with a violaceous reflection. Course of the darker lines as in H. cruralis, but the t. p. line is more bent inferiorly. Antennae nodose; fore tibia with a retractile fascicle of testaceous scales. Body concolorous. *Expanse,* 25 to 30 m. m.

Habitat.—Central Alabama.

Three specimens, taken at Demopolis, at once differ from allied species by their obscure blackish color. The ♀ is smallest.

Herminia ochreipennis, *Grote.*—♂ ♀.—Pale testaceous, shaded terminally with bright rusty ochraceous. The female has the wings entirely of the latter color. Ornamentation resembling that of H. cruralis. The t. a. line is waved and arcuated. T. p. line dentate and waved, much as in H. marcidilinea. Discal spot evident. Subterminal line rigid, followed by a pale linear shade, broadly marked. Secondaries pale, with powdery dark and ochrey scales. The two transverse lines unusually wide apart. Beneath with double propinquitous lines and distinct discal marks. Male antennae strongly nodose and crooked; male fore tibiae with exaggerated bright testaceous retractile tufts. *Expanse,* 28 to 33 m. m.

Habitat.—West Virginia, Pennsylvania.

While the pattern of ornamentation is that of the preceding species, H. ochreipennis differs by its more intense coloration, somewhat squarer primaries, the exaggerated male tibial tufts, while it is a little stouter and in its general appearance very distinctive.

⁂ S. g. **PHILOMETRA,** *Grote.*

Herminia serraticornis, *Grote.*—♂.—Wings ample; primaries with the costa a little depressed centrally, rising to the apices, below which the rounded external margin is a little depressed. Brownish ochreous; primaries with brown lines. T. a. line waved. Median shade very prominent, broad and diffuse, obscuring the discal mark. T. p. line a little irregular, waved, plainly notched opposite the disc on its exerted portion. Subterminal line prominent, shaded, twice inwardly angulated, touched with blackish before the apices. Terminal broken line barely noticeable. Secondaries powdered with blackish, nearly as dark as primaries, with double transverse shade lines. Beneath with double external propinquitous shaded lines and discal dots. Antennae rather long, without nodosity, shortly pectinate; pectinations gradually decreasing to the tips. Fore legs with a brush of blackish hair. Palpi

long, obliquely ascending, a little bent and recurved at tips. *Expanse*, 26 to 28 m. m.

Habitat.—Pennsylvania, Virginia.

The broad median shade is characteristic of the present and following species. Rubbed specimens easily lose the narrow ordinary lines, leaving the diffuse median shade and subterminal line alone evident.

Herminia longilabris, *Grote.*— ♂ ♀.—Slighter and more slender than H. serraticornis; coloration and ornamentation similar. Male antennae lengthily pectinate; in both sexes relatively short. Labial palpi very long, projected forwards, divaricate. Median lines narrow, shaped as in H. serraticornis, but more even. Median shade diffuse and prominent; subterminal line more linear, less angulated than in H. serraticornis. Beneath more yellowish, brighter stained, with a straighter and fainter external and a propinquitous bent and distinct interior line. Male fore tibiae not tufted. *Expanse*, 23 to 26 m. m.

Habitat.—Pennsylvania, Virginia.

Very easily distinguished by the above characters. When, by any accident, the palpi are broken off, the insect looks very much like a Geometer.

RENIA, *Guenée.*

Renia alutalis, *Grote.*— ♀.—Brown. Primaries pale leather brown, evenly colored. T. a. line straight, single, linear, faint, in the ♂ probably more distinct. Reniform concolorous, with two black dots, the lower the larger. Median shade even, diffuse, apparent below reniform. T. p. line linear, irregular waved, marked on costa, else faint. Subterminal line determinate, consisting of a strongly marked preceding blackish shade, shaped as in allied species, and a faint following line. Terminal series of nervular dots distinct. Secondaries fuscous, paler within, crossed by two faint lines, corresponding to the t. p. and s. t. lines of the primaries as usual, with the even terminal border darkest and the space between the lines (corresponding with the subterminal space of fore wings) the palest. Palpi projected; thorax concolorous with primaries. Legs brownish with the tibiæ blackish. Beneath, both wings resemble upper surface of secondaries. Expanse 32 mm.

Habitat.—Philadelphia. (Bunte).

This species has the outline of R. brevirostralis, ♀, is perhaps a little larger and differently colored. I regret not to know the ♂, as in this genus both sexes should be observed, but I can have no doubt that it belongs here.

Renia plenilinealis, *Grote.*— ♀.—Ochreous brown shaded with blackish brown from the costa downwardly. Ornamentation distinct; lines blackish. T. a. line even, gently sinuate. Median shade diffuse, nearly straight, obscuring the reniform which is indicated by two superposed black dots sometimes fused into a black lunate mark. T. p. line fine, regularly lunulated, but

slightly projected beyond the cell. Subterminal line pale, preceded by an evident blackish coincident shade. A neat terminal series of interspaceal black marks. Secondaries blackish fuscous; the t. p. line continued, distinctly relieved by a pale shade inferiorly. A subterminal line preceded by a darker shade analogous to the s. t. line of primaries. Beneath paler, both wings similar, with continued transverse lines distinct, the subterminal preceded by a distinct blackish shade; discal black dots. *Expanse*, 25 m. m.

Habitat.—Philadelphia, (Bunte).

Outline of allied species, but differing in color and in the distinct ornamentation. Palpi projected, compressedly fringed, 2nd article elongated, while the 3rd is porrected at right angles. My specimens are all females; without a knowledge of the male, so that the antennal structure can be noted, I do not feel certain of its generic position.

The following is a list of the North American species of Renia:

discoloralis *Guenée.*
Hypena fallacialis, Walk.
brevirostralis *Grote.*
alutalis *Grote.*
plenilinealis *Grote.*
larvalis *Grote.*
restrictalis *Grote.*
centralis *Grote.*
♀♀
pastoralis *Grote.*
Belfragei *Grote.*

In my previous paper, on page 27 of this volume, the observation relative to the appearance of the t. p. line in this genus, contained in the first four lines on that page, applies to Renia pastoralis and R. Belfragei. It is mistakenly printed before the description of R. centralis. The t. p. line is even, geminate and sinuate in the two last named species of Renia. In the rest it is less conspicuous, irregular, linear, dentate or waved, tending to be marked by dots on the veins. In appearance R. larvalis, R. restrictalis and R. centralis are blackish with indistinct markings; R. restrictalis the narrowest, most glossy and darkest.

HYPENA, *Treitschke.*

In the collection before me I separate fourteen species of Hypena from the Atlantic District. I have seen in the British Museum specimens referable to this genus and recorded under specific names that I here enumerate without having again identified the species. While Mr. Walker's *Hypena fallacialis* is a redescription of Renia discoloralis *Guenée*, his other species not recorded here are, for one cause or another, unentitled to acceptance in our Lists.

Hypena citata, *Grote.*—♀.—Our smallest species with a casual resemblance to the European H. antiqualis, but more nearly allied to the succeeding species. Apices of primaries determinate, external margin roundedly exserted at extremity of median nervules; fringes rather long, cut at extremity of the veins. Blackish, washed with whitish, indistinctly marked, somewhat speckled. At base downward along internal margin obliquely to t. p. line the forewings are pale, dull brownish; orbicular a black scale dot. T. p. line distinctive, nearly perpendicular, continued, outwardly a little irregularly waved, whitish with an inner olivaceous brownish marginal line. Reniform annulate with pale center touching the t. p. line at extremity of disc. A very indistinct minutely dentate arcuate subterminal line. A diffuse oblique whitish apical shade; costal anteapical white marks. Terminal line black, broken on the veins, interspaceal, preceded by a coincident white line. Nervules tending to be marked by white scales. Hind wings blackish, concolorous, dark; fringes interrupted with a paler shade. Beneath both wings like secondaries above. Body parts pale beneath, dark above; labial palpi with the second thickly scaled joint elongated. *Expanse,* 19 m. m.

Habitat.—Alabama; August.

A similar inception of the t. p. line on costa may be traced in H. evanidalis and H. humuli, but the line is continuous and everywhere distinct in H. citata.

Hypena evanidalis, *Robinson.*—♂ ♀.—I think that the "lighter rusty-brown" specimens mentioned by Harris in his description of H. humuli, refer to this form which may, indeed, not be specifically distinct from the following, than which it seems a little smaller. Light dusty ruddy brownish with a more or less evident apical blackish shade. A dull blackish costal patch above the discal cell; on this are two separate pairs of superposed raised scale dots. An angulated pale line at extremity of cell. A subterminal series of small dots opposite terminal interspaceal black points. Hind wings rather pale with paler fringes. Labial palpi elongated. *Expanse,* 28 to 30 m. m.

Habitat.—Eastern and Middle States.

Resembles the European Hypena rostralis, but differs by the more even, less sinuate external margins of the wing

Hypena humuli, *Harris.*—♂ ♀.—Darker and larger than the foregoing, I think Harris' "dusky or blackish brown" specimens are to be referred here. The fore wings are marbled and obscurely colored. The ornamentation is seen with difficulty, but it consists of raised scale dots and the angulated extra discal line as in H. evanidalis, from which it may not be distinct. Harris' figure in the "Insects Injurious to Vegetation" undoubtedly represents this form and not the preceding. On the whole this species rather resembles the European H. obsitalis, though narrower winged and darker, and, with H. evanidalis, quite unlike H. rostralis in the shape of the wings. *Expanse,* 30 m. m.

Habitat.—Throughout the Atlantic District; I have a specimen from Alabama.

Hypena erectalis, *Guenée.*—♂ ♀.—Bright blackish brown with ashen shade and raised scales in lines and dots. Discal and submedian black longitudinal lines or dashes more or less evident. Extra discal angulate line of dark raised scales, followed by a pale shade, distinct and continued. Subterminal dentate line followed by pale coincident shade evident on the dark terminal ground color of the wing which is neatly limited superiorly by the oblique apical shade. A continued dark terminal line preceded by pale diffuse terminal points. Hind wings very dark fuscous. *Expanse,* 30 to 32 m. m.

Habitat.—Throughout the Atlantic District.

A well marked form of this species is:

a. **Hypena subrufalis.**

In both sexes a ferruginous shade fills in the lower half of the wing to the extra-discal or transverse posterior line and renders the dentate transverse anterior line apparent inferiorly. It tinges both lines and the terminal space, leaving the costo-apical region ashen as in the type. The discal and submedian dashes are obsolete. The superior portion of the primaries above the ferruginous shade is of a dull sooty black. Else it agrees well with type and occurs as commonly.

Hypena scabra, *Fabricius,* sp.—♂ ♀.—Larger than H. erectalis, with very wide secondaries. Uniformly darker, more obscurely colored. Raised scales in dots and lines as in the preceding species. The primaries have an even somewhat olivaceous blackish appearance, with a slight ashen wash subterminally and apically. *Expanse,* 32 to 34 m. m.

Habitat.—Very common throughout the Atlantic District.

Hypena baltimoralis, *Guenée.*—♂ ♀.—This is the American representative of the European H. crassalis. The primaries are rich brown from the base to the t. p. line leaving the internal margin usually pale. The brown color is produced downwardly near the t. p. line. The line is uneven, projected opposite the disc, thence running inwardly, instead of being continued perpendicularly for a space as in H. crassalis. Beneath the subterminal line is indicated by a single whitish dot below costa where in H. crassalis are usually two. H. baltimoralis varies much in depth of color, and while in some specimens the brown basal patch contrasts forcibly, in others the terminal space is nearly equally dark colored. The brown color varies in tint. These darker specimens seem to be analogous to the *var.* terricollalis of the European H. crassalis. *Expanse,* 32 to 34 m. m.

Habitat.—Canada, Eastern and Middle States; quite common.

The male has been described by Mr. Walker, under the name of *benignalis.*

Hypena abalienalis, *Walker.*—♂ ♀.—Quite nearly resembles the dark var. of H. baltimoralis. The primaries are entirely blackish to the whitish geminate continued t. p. line. This is roundedly outwardly projected

over m. nervules and is more even than usual. Basal whitish line sometimes apparent. Subterminal line white, angulate, appearing interlaced with t. p. line and reminding us of Cidaria atricolorata. *Expanse*, 26 to 30 m. m.

Habitat.—Same localities with the preceding.

Hypena bijugalis, *Walker.*—♂ ♀.—Primaries with a brown basal patch like H. baltimoralis, than which this is a somewhat smaller species. The t. p. line is distinctively shaped; it is nearly perpendicular, twice scalloped, projected most prominently and shortly over median nervules. Subterminal line an undulated series of distinct dots. Following the t. p. line the wing is palest shaded; in dark specimens with a violet wash. Varies in tint. *Expanse*, 27 to 31 m. m.

Habitat.—Eastern, Middle and Southern States.

Hypena manalis, *Walker.*—♂ ♀.—Smaller than the preceding species. A median oblique olive brown patch extending downwardly from costa, margined inwardly by the even strongly outward oblique t. a. line, and outwardly by t. p. line, which is similar to t. a. line in appearance, but roundedly projected over m. nervules, thence inwardly oblique nearly joining t. a. line at lower angle of the median patch. Elsewhere the primaries show a purplish reflection. Subapical blotches or dash very obvious. S. t. line dotted. A minute raised scale dot on the cell, in place of orbicular, on the dark patch. *Expanse*, 23 to 25 m. m.

Habitat.—Canada, New York; altogether rarer than the preceding and our prettiest species.

Hypena madefactalis, *Guenée.*—♂ ♀.—A broad winged species, colored like the foregoing, but less intensely and brightly. Primaries olivaceous brown to t. p. line which is nearly perpendicular, continued, a little waved, variable in evenness. The t. a. line perceptable, not pale like the t. p. line but darker shaded than basal space. Orbicular dot more or less evident. T. p. line followed by purplish washings. Subapical blotches variable in distinctness. Subterminal shades and lines inconspicuous. Beneath wing and body are ochrey tinted, former with obsolete markings. *Expanse*, 30 to 32 m. m.

Habitat.—New York, Pennsylvania, Virginia.

Guenée describes from a figure of Abbot's. I think this is the species intended, but there are slight discrepancies in the two descriptions.

Hypena toreuta, *Grote.*—(=*internalis* || Robinson.)

This species is described in a previous paper. Mr. Robinson's descriptive term had been used by Guenée for another species. With the succeeding the external margin of primaries is unusually rounded.

Hypena sordidula, *Grote.*—♂.—Size and color and form of H. toreuta. Sooty black, powdered with grey scales. The ordinary lines are faintly apparent, nearly perpendiclar, brought into relief by pale powderings, waved or undulate. T. p. line usually marked by pale scales on costa. Several ante-

apical minute pale costal dots. Fringes interrupted with whitish on both wings, short. Secondaries deep blackish, with black discal dot apparent. Beneath paler, dusted with pale scales, without markings, except terminal lines as on upper surface and discal marks. *Expanse*, 30 m. m.

Habitat.—Pennsylvania.

Differs from Hypena toreuta at first sight by the absence of the pale patch on internal margin.

Hypena profecta. *Grote.*—♂.—A large species with the costa of primaries depressed. Blackish brown with a very faint purplish lustre. Median space the darkest, defined by the darker shaded, nearly perpendicular, waved or uneven median lines faintly relieved by pale scales. Subterminal lines faint. Fringe on both wings blackish; secondaries concolorous, without marks. Beneath a little paler with shaded discal dot and diffuse common exterior line. Body concolorous; antennæ somewhat pale. *Expanse*, 35 m. m.

Habitat.—Pennsylvania; agrees with H. deceptalis in the shape of the wings, but an obscurely marked species with diffuse shaded lines.

Hypena deceptalis. *Walker.*—♂ ♀.—Blackish brown. Wings wide; costa depressed; apices produced. Fore wings with two distinct continued even propinquitous sub-parallel pale or white median lines; the t. a. slightly angulated at costa and again less evidently at vein 1; the t. p. line a little bent on m. nervules opposite the cell; an indistinct subterminal series of darker shadings. Median space darker than the wing elsewhere, tolerably narrow; ordinary spots obsolete. Hind wings unicolorous, a little paler than primaries; beneath both wings paler than above. Body colored as wings; antennæ testaceous. *Expanse*, 32 to 38 m. m.

Habitat.—West Virginia, Canada (the small specimens) "No. 625."

DESIDERATA:

Hypena edictalis. *Walker.*

"A large species with marbled primaries."

Hypena damnosalis. *Walker.*

"Related to H. edictalis; the outer line is pale margined, regularly scalloped."

TORTRICODES. *Guenée.*

Of a single species inhabiting our Territory I have specimens before me which are apparently all males. These are characterized by an extraordinary semicircular deep cut in the external margin at about the middle and which divides the primary wing into two lobes. The parts are not widely separated and the edges are fringed, so that

we can imagine the margin to be abnormally drawn in. The neuration is aberrant in consequence. The full secondaries have the cell incompletely closed. Vein 5 is removed from 3 and 4 at base and originates from the closure of the cell before the median fold. This neuration agrees with that exhibited by what is here considered as a second species with undivided wings, but what is in all probability the normal female form of this remarkable genus. From all the species described by Guenée ours differ at once by the absence of costal tufts; but the neuration agrees, on the whole, with Guenée's description, and I must consider our forms correctly referred here.

Tortricodes bifidalis. *Grote.*— ♂.—Light, rather dull brown. On costa at base a trace of the basal half-line. T. a. line even, margining inwardly a diffuse deep brownish shade which extends over the median space anteriorly and fades towards the linear median shade line. Reniform small, pale centered, sometimes divided into two pale dots. T. p. line blackish, linear, like median shade in appearance, slightly projected below costa, inwardly curved at vein 1, a little irregular, less distinct towards internal margin. Subterminal line very distinct at costa where it is brought into relief by pale scales and forms a prominent exerted acute tooth on the upper lobe. The internal margin of the upper lobe shows a black dot at its middle and the extremity of the fissure is touched with black. A blackish apical shade. Secondaries fuscous with inconspicuous discal marks and double transverse lines relieved by paler shades; beneath the discal dot is black and distinct and the lines more evident; the inner black, denticulate. Head and appendages and thorax above concolorous with primaries. Abdomen like secondaries with a series of darker dorsal segmentary shades. *Expanse*, 25 m. m.

Habitat.—Atlantic District (New York to Texas).

I have taken this species at Hastings, N. Y., on June the 18th.

Neither the present nor the following show any costal hair tuft on on the primaries like that characterizing the Brazilian and West Indian species described by M. Guenée. Our species differs from the description of T. orneodalis from Guadaloupe in many respects such as color, the presence of the distinct subterminal line and in all the details of the ornamentation and size.

What appears a second species exists in the collection and occurs in the same localities, but at first sight, by its color and style of ornamentation and size, this suggests an affinity with the preceding species. And as I see that Guenée records his 2nd group of the genus as wanting the characteristic cut of the fore wings, I can consider this species as not differing generically from T. bifidalis.

There is no vestige of a cut on the primaries, which have the out-

line and appearance of Heterogramma, as illustrated by Guenée. It corresponds with that genus in the absence of accessory cell on the primaries and the course of veins 6, 7 and 8, which are thrown off on the external margin from the same stalk. Veins 3, 4 and 5 are equidistant and approximate at base. The cell is closed and there is a cellular fold. But on the secondaries vein 5 is not "recurved and touching median nervure," since it issues from the discal cross-vein and is but little slighter. It is not continuous, however, with the discal fold, but is thrown off from the cross-vein nearer the median nervure. Veins 6 and 7 are furcate opposite to 3 and 4. The antennae are without peculiarity, slender. The palpi agree with those of T. bifidalis, being divaricate, bent upwardly and held free from the head. Structurally the difference between the two seem to be confined to the primary wings.

Tortricodes indivisalis. *Grote.*—♀.—Light brown, a little variable in color, some specimens being darker. T. a. line perpendicular, followed by a diffuse dark broad shade as in T. bifidalis. Median shade broadly linear, waved, copying the t. p. line, which latter is narrower, inwardly angulated on the disc and again on submedian fold. Subterminal line very distinct, preceded by a distinct diffuse deep brown shade, followed by a narrow coinciding atomical pale line, copying in its course the t. p. line, deeply angulate opposite the cell; at its inception this angulation mimics that of this same line on the upper lobe in T. bifidalis. An apical shade. Apices acuminate and the external margin produced at extremity of median nervules. Secondaries pale testaceous blackish with an inner dark line and outer geminate linear pale and dark shade lines. Beneath with double minutely dentate distinct common lines, the inner somewhat undulate or irregular. Discal dots, as are the lines most distinct on secondaries. *Expanse*, 22 to 25 m. m.

Habitat.—New York, Alabama.

On a critical comparison T. indivisalis differs from T. bifidalis by the course of the t. p. line, which, in that species, after the costal angulation, descends perpendicularly to submedian interspace, whereas it is here angulated on the disc and mimics the subterminal. The general color is brighter, the diffuse shade which follows the t. a. line is not so dark, while the wing at base is paler than elsewhere and increases the resemblance of the two forms. In T. bifidalis, after the first very distinct outward oblique stroke of the subterminal, the line becomes nearly lost and its after-course, skirting the base of the incision, can hardly be determined, but it appears to descend weakly to internal margin. The hind wings and under-surface agree in the two forms, which I am inclined to consider as merely sexes of one species,

with the fore wings cleft in the male. And with four specimens of T. bifidalis before me and eight of T. indivisalis, I cannot but be sure that most, if not all, of my T. bifidalis are males, and of my T. indivisalis, females. The differences in the appearance of the two forms seem after all to be merely owing to the cleft in the wings of one; though the shade of color is not quite the same and the course of the t. p. line constantly differs. The dark colored maculate legs seem to be similar in appearance in both species while the armature seems alike; both forms have a single long spur at the extremity of the middle tibiae. I shall then not be disappointed that the two prove to be sexual forms of one species. Guenée had only males before him with cleft wings, and speaks doubtfully of the probable sexual peculiarities of the female. If T. bifidalis and T. indivisalis are ♂ and ♀, the sexual secondary characters will be confined to the primaries.

CLANYMA, *Guenée.*

Two species of this genus are described by Guenée from our Territory and specimens are contained in the collection before me. These are notable from exaggeration of the labial palpi, which, in the female, are thickly scaled and extended forwards and are longer than the head and thorax together; the 3rd article is held at right angles with the elongated second, small, distinct, subspatulate, porrect. In the male they are thrown backwards over the head and thorax, closely applied and furnished with a large hidden tuft of light-colored hair capable of expansion.

Clanyma angulalis, *Hübner,* sp.—♂ ♀.—Primaries brownish frosted with pale slightly purplish scales; colors bright. A narrow blackish half-line; t. a. line similar, inwardly oblique, outwardly waved. A minute orbicular dot. Median shade obsolete superiorly, forming an inwardly oblique very prominent deep brown shade streak below the disc to internal margin. Reniform well sized, deep brown, approximate inferiorly to the linear t. p. line, which latter resembles the t. a. line in appearance, a little irregular, projected opposite the disc. Subterminal line diffuse, followed by a distinct whitish shade, perpendicular, a little jagged or dentated. Costal region at apices with a brown shade below which, on external margin, is a bright yellowish shade patch. A narrow continued terminal line; the fringes are obsoletely spotted with brownish. Secondaries pale ochreous, darker shaded inferiorly, the t. p. line of the primaries continuous. A diffuse subterminal line followed by a whitish shade at the angle. Beneath with powdered dark scales and double lines on both wings; discal dot on secondaries evident. *Expanse,* 24 to 28 m. m.

Habitat.—Massachusetts to Alabama.

Clauyma asopialis. *Guenée.*—♂.—Deep purplish brown or blackish. T. a. line with a pale interior shade. Median shade diffuse, filling up the anterior half of the median space below m. nervure, narrowly obliquely continued to costa superiorly just within and touching the circular reniform spot which is divided by a pale streak. T. p. line a little diffusly shaded, especially inwardly inferiorly. Subterminal a little diffuse with a distinct pale shade, projected and angulated, touching the middle of external margin, dentated and geminate. A dark spot on the external margin. Hind wings blackish, very pale along costal region, with double diffuse transverse lines, the subterminal touched with whitish at anal angle, ♂ palpal tufts deep testaceous. The costa of primaries is more depressed, apices more acuminate than in C. angulalis, than which this is a smaller darker and more compactly built species: the ♂ abdomen is notably more reflexed. *Expanse*, 20 to 23 m. m.

Habitat.—New York to Alabama.

Guenée's description is based on defective material and is at best comparative. But this is undoubtedly his species, recognizable from the character assigned to the reniform spot.

I have now identified all of Guenée's descriptions of Deltoidae from our Territory, with the exception of Rivula propinqualis. The species referred by Guenée to *Helia*, will be described in a succeeding paper.

Synopsis of the MALACHIIDÆ of the United States.

BY GEO. H. HORN, M. D.

The following synopsis of our Malachiidæ contains all the species known to me as inhabiting our territory. *Collops* is not included, as a descriptive catalogue has already been presented in the preceding volume of these Transactions.

The following table will enable our genera to be readily recognized. All the genera have eleven-jointed antennæ:

Anterior tarsi ♂ 4-jointed.
  Head long; first joint of antennæ cylindrical.....**Trophimus.**
  Head short; first joint of antennæ deformed.....**Temnopsophus.**
Anterior tarsi 5-jointed in both sexes.
  Elytra very short; body apterous in both sexes.
    Second joint of anterior tarsus ♂ prolonged over third.....**Endeodes.**
  Elytra covering abdomen or nearly so.
    Antennæ inserted on the front nearly between the eyes.
      Second joint of anterior tarsus ♂ not prolonged.....**Malachius.**
      Second joint slightly covering the third.
        Head elongate.....**Tanaops.**
    Antennæ inserted at anterior edge of front near the sides.
      Anterior tarsus of male simple, joint 2 not prolonged.
        Form elongate, legs long; females apterous.
          Anterior tarsi ♂ stouter than in female.....**Microlipus.**
        Form broad, legs moderate; female winged.
          Anterior tarsi similar in the sexes.
            Elytra similar in the sexes.....**Anthocomus.**
            Elytra prolonged and appendiculate in ♂.....**Pseudebæus.**
      Anterior tarsi with second joint prolonged over the third.
        Elytra similar in the sexes.....**Attalus.**

In the above table *Malachius* includes *Hapalorhinus*; *Microlipus* includes also *Charopus*, sp. Lec. List; *Pseudebæus* contains the species under *Ebæus* in the List; *Attalus* includes *Acletus*, Lec. In the determination of the genera the course indicated by Duval has been followed. In a previous paper I intimated that some of our species of *Attalus* might be *Ebæus*, under the impression that the second joint was prolonged obliquely inwards. There appears to be a greater degree of motion between the second and third joints of the

anterior male tarsus than is usual among coleoptera, so that joints 3, 4 and 5 are frequently at right angles to the two preceding joints, while the prolongation of the second joint seems thus to be directed obliquely inwards. In every instance, however, the process is found to be canaliculate beneath for the reception of the third joint, and specimens of the same species are before me, some with the tarsal joints all in line, others with the last three oblique to the others. In the accompanying diagrams the upper two cuts represent the anterior male tarsus of *Attalus* as seen directly from above and also from the side and slightly beneath. This is the form seen in our fauna. The lower two cuts show the tarsus of *Ebæus* with the oblique prolongation of the second joint. *Acletus* does not essentially differ from *Attalus*. The process of the second joint is, however, shorter and the antennæ more distinctly serrate in the male than in the other species of *Attalus*, but these seem scarcely to warrant generic separation. As Duval observed very little reliance can be placed on characters drawn from the extent of the coriaceous margin of the front, or from similar structure in the ventral segments.

Microlipus differs from *Charopus* in having the anterior tarsal joints of male nearly of equal size, and stouter than is usual in the group.

Of the genera above cited *Endeodes*, *Tanaops* and *Microlipus* are peculiar to the Pacific region, the first being found only along the seacoast. *Malachius* contains one introduced species, four from the Pacific and one from Dacota. *Anthocomus* and *Pseudebæus* are peculiar to the Atlantic region. *Trophimus* and *Temnopsophus* have each but one species, while *Attalus* is found in every portion of our fauna, many of its Pacific forms assuming the elongate head of *Tanaops*.

TROPHIMUS, Horn.

Trophimus, Horn, Trans. Ent. Soc. 1870, p. 84.

T. æneipennis, Horn, loc. cit., p. 85.—Head elongated black, shining. Thorax reddish yellow with small black spot near middle of anterior margin. Elytra black with æneous tinge. Legs black. Length .12—.14 inch; 3—3.5 mm.

Collected in Colorado.

The genus *Trophimus* is the representative in our fauna of the European *Troglops* and *Homœodipnus*, but resembles more nearly *Cephalagonia* Wollast. as well in form as in most of its characters, it differs from the latter, however, in the third joint of the antennæ being shorter than the fourth and the first tarsal joint long. This genus and the following are the only ones with 11-jointed antennæ, in which the anterior tarsi differ in the sexes in the number of their joints.

TEMNOPSOPHUS, n. g.

Head short obtuse in front. Eyes prominent. Antennæ nearly as long as the entire body, eleven-jointed; first joint longer than the two following together, stout, very slender at base and with a short process from the anterior margin projecting inwardly; joints 2–10 equal, joint eleven longer than the tenth; insertion at the anterior margin of front. Maxillary palpi moderately long, first joint slender, second globular, emarginate on the proximal side to receive the third which is triangular and thick. Anterior tarsi four-jointed in the male. Elytra entire.

This represents in our fauna the genus *Colotes* of Europe, from which it may readily be distinguished by the form of the basal joint of the antennæ and the form of the palpi.

T. bimaculatus, n. sp.—Piceous, shining. Head piceous, anterior margin of front yellowish, vertex with slight linear impression, surface sparsely punctulate and finely alutaceous. Antennæ pale yellowish, tip darker. Thorax oval, in front broadly rounded, apex truncate, sides rounded in front and converging to apex, color piceous, shining, apex paler, surface punctulate and finely alutaceous. Elytra piceous with large yellow spot behind the humerus joining the margin which is also narrowly margined with yellow, apex pale testaceous gradually joining the darker color of the rest of the surface; form oval, rapidly widening behind; surface rather coarsely but sparsely punctured. Body beneath piceous. Legs pale brownish-testaceous, femora at base paler. Body winged. Length .08 inch; 2 mm.

The elytra are broadest near the apical three-fourths and are nearly twice as broad at this point as at base. The thorax resembles in form that of *Endeodes*.

One specimen ♂ in the cabinet of Mr. H. Ulke from Louisiana.

In the very greatly magnified representation the antennæ are much too short. The detached figure in front of the head is the maxillary palpus, the penultimate joint being concave to receive a corresponding convexity of the terminal joint.

ENDEODES. Lec.

Endeodes, Lec. Arcana Natura, 1859, p. 122.

This genus is the only one in our fauna with the elytra so abbreviated as not to cover the greater part of the abdomen. Our species are found along the California sea coast, and may be known as follows:

Body entirely ferruginous.
Elytra opaque black, basal margin ferruginous.....**basalis.**
Body almost entirely black; thorax ferruginous; elytra black.
Head, antennæ and legs ferruginous.....**abdominalis.**
Head, antennæ and legs black.....**collaris.**

E. basalis. Lec. (*Atelestus*) Proc. Acad. 1853, 168.

This species is entirely ferruginous except the elytra which are opaque, nearly black, with the basal margin ferruginous and sometimes a narrow sutural and lateral space of the same color. Length .14 inch; 3.5 mm.

E. abdominalis, Lec. loc. cit.

In this species the abdomen, under posterior of body and elytra are black, the head, thorax, antennæ and legs ferruginous. It otherwise resembles the preceding. Length .14 inch; 3.5 mm.

E. collaris. Lec. loc. cit.—Head, antennæ, legs, elytra and abdomen black. Thorax red and more shining and usually broader than in either of the preceding species, with which it otherwise agrees in form. The black color has a slight tinge of blue. Length .14—.22 inch; 3.5—5.5 mm. (The latter measurement is that of an unusually large female.)

The genus *Endeodes* may be known by its short elytra, apterous body, five-jointed tarsi, the anterior pair rather shorter than usual and the second joint ♂ prolonged *over* the third, as in *Attalus*, and concave beneath. They were originally described as *Atelestus*.

MALACHIUS. Fab.

Malachius, Fab. Syst. Ent. 1775, p. 207.
Hapalorhinus, Lec. Proc. Acad. 1859, p. 75.

Tarsi all five-jointed, simple in both sexes. Head short, antennæ inserted nearly between the eyes.

Our species may be thus arranged:

Antennæ serrate in the males.
Elytra simple at tip in the two sexes.
Second joint of antennæ similar in length and form to third.....**æneus.**
Second joint of antennæ much shorter than the third.....**biguttulus.**
Elytra appendiculate in the male.....**auritus.**
Antennæ pectinate in the males.
Elytra appendiculate in the male.....**mirandus.**
Elytra not appendiculate in the male.
Elytra shining blue, tipped with yellow.....**mixtus.**
Elytra black.....**Ulkei.**

M. æneus. Linn. Fauna Suecc. 1761, 202; Erichs. Mon. 66.—The head and thorax are metallic green, the labrum and apical angles of thorax pale yellowish. The elytra are in great part red, with a common triangular metallic green space, including the entire base of the elytra, the sides converging to a point near the appex. The under surface is black with a metallic tinge and the legs similar in color to the thorax. Length .24—.32 inch; 6—8 mm.

Occurs in the New England States. An introduced species in our fauna.

M. auritus. Lec. Proc. Acad. 1852, p. 165.—Head and antennæ black. Thorax rufous with large discal black spot, occasionally with lateral margins only rufous. Elytra bluish, sub-opaque, rarely with a greenish tinge, surface with usually two indistinct costæ; tip in male, of similar color to the remainder of surface, appendiculate; female tipped with rufous. Under surface and legs black with faint metallic tinge. Length .20—.30 inch; 5—7.5 mm.

Occurs in California and Oregon.

M. biguttulus. Horn, Trans. Ent. Soc. 1870 p. 87.—Head and antennæ black. Thorax black, shining, with a tinge of green. Elytra metallic blue, shining, with a small yellow smooth spot on each near the apex. Legs and under surface black with a slight tinge of blue. Length .14 inch; 35 mm.

Resembles *mirandus* in form, but has a totally black thorax, more shining and not appendiculate elytra. In all our native species of *Malachius* the second joint of the antennæ in both sexes is smaller than the third and usually of an oval form.

One specimen from Fort Tejon, California.

M. mixtus. n. sp.—Head black, very shining, smooth and with a slight longitudinal impression within the antennæ. Antennæ black, strongly pectinate in the males and strongly serrate in the females. Thorax somewhat broader than long, very smooth and shining, black, lateral margin red. Elytra slightly broader at base than the thorax and feebly expanding to apex; color brilliant blue, shining, apices in both sexes tipped with reddish yellow; surface slightly scabrous. Under surface and legs black, with tinge of blue. Length .14—.18 inch; 3.5—4.5 mm.

Two specimens from California. The female resembles that of *auritus*, but is much more shining and has its antennæ very nearly as strongly serrate as those of the male of that species. From *mirandus*

it differs in its greater lustre and by the males of latter having the elytral apex appendiculate.

M. mirandus, Lec. (*Hapalorhinus*) Proc. Acad. 1859, p. 75.—Head black, front slightly impressed, smooth, shining. Antennæ black, strongly pectinate in the males, serrate in the females. Thorax smooth, shining black, sides and occasionally apex, broadly margined with yellowish red. Elytra scarcely shining, variable in color from ochreous to blue, frequently of the former color clouded with the later. Apex paler and smoother, appendiculate in the males. Body beneath black, tinged with blue. Legs black, hind tibiæ and middle knees yellowish. Length .16 inch; 4 mm.

There need be no difficulty in distinguishing this species from the preceding, by the color of the hind tibiæ alone, even in doubtful cases. In some unusually large specimens the aspect is that of *auritus*, but there are many characters serving to distinguish the latter.

This species is widely distributed in California, but most abundant at Fort Tejon on the flowers of various Leguminosæ.

M. Ulkei, n. sp.—Black, feebly shining, sparsely clothed with cinereous pubescence. Head black, with slight vertical impression. Antennæ black, strongly pectinate from the fourth joint, third joint triangular. Thorax broader than long, sides fully rounded, surface punctulate and sub-opaque, sides broadly margined with yellow. Elytra black, feebly shining, surface scabrous, sides parallel, broadly rounded at tip. Body beneath black, shining. Legs black. Length .14 inch; 3.5 mm.

Resembles *Anthocomus Erichsonii*, Lec., but has the pectinate antennæ inserted as in the other species of this genus.

One specimen from Dacota, kindly loaned, with many other species, by Mr. H. Ulke, to whom it is dedicated.

TANAOPS, Lec.

Tanaops, Lec. Proc. Acad. 1859, 74.
Caphalistes, Motsch. Bull. Mosc. 1859, pt. iv., p. 209.

This genus appears to occupy an intermediate position to the Malachii on the one hand and the Attali on the other, not only in the position of the antennæ but also in the form of the anterior tarsus of the male. The latter is described by LeConte as having the first two joints thicker than the following, and by Motschulsky as longer. Both of these facts are true, but the second joint is very distinctly prolonged over the third, although to a very slight extent. The two species vary in the structure of the abdomen.

T. abdominalis, Lec. Proc. Acad. 1859, p. 74.—Black with slight tinge of blue, shining, sparsely clothed with short black hairs. Head elongate, front slightly impressed, anterior margin of epistome membranous. Antennæ

black, ferruginous at base, serrate, longer than half the body. Thorax slightly broader than long and somewhat narrower in front, surface smooth shining, sides broadly margined with rufous. Elytra slightly broader behind, shining, surface punctulate and slightly wrinkled, color black with slight tinge of blue, lateral margin, apex and suture (except at base) margined with reddish-yellow. Legs black, femora and coxæ yellow. Length .16 inch; 4 mm.

Male.—Body beneath entirely yellow, sides of metasternum brown. Abdominal segments entire, the last three with reniform excavations deeper in the terminal which has also within the excavation a cup-like process. Second anterior tarsal joint prolonged slightly over the third.

Female.—Body beneath black, abdomen yellow. Abdominal segments, except the last two, interrupted at middle, terminal segment black.

Occurs in various parts of southern California.

T. longiceps, Lec. (*Malachius*) Proc. Acad. 1852, p. 165; (*Tanaops*) Proc. Acad. 1859, p. 74; *apicalis* Motsch. (*Cephalistes*) Bull. Mosc. 1859, iv., p. 409, pl. 4, fig. 28; *unicolor* Motsch. loc. cit. p. 410. Resembles the preceding in form and sculpture and differs as follows; Epistoma in front of insertion of antennæ membranous. Thorax totally black, rarely with hind angles paler. Lateral margin of elytra near apex only, apex and suture at apical half rufous. Length .14—.16 inch; 3.5—4 mm.

Male.—Antennæ more distinctly serrate. Abdomen with last two segments with two rounded foveæ separated in a similar manner. Body beneath and legs black, anterior trochanters yellow.

Female.—Last two abdominal segments entire, penultimate elevated along the middle, anterior segments membranous at middle.

This species is variable in the extent of the paler margining of the elytra. The two species of Motschulsky are examples of this, and I have but little doubt in uniting them with the species of LeConte, which has but a few months' priority and was not known to Motschulsky.

Occurs with the preceding species in California.

T. longiceps and *abdominalis* may always be distinguished by the extent of the membranous margin of the epistoma, the former has the membrane extending to the point of insertion of the antennæ, so that the ring in front is incomplete, while the latter has the antennal insertion completely surrounded by a corneous ring although very narrow in front.

MICROLIPUS, Lec.

Microlipus, Lec. Proc. Acad. 1852, p. 168.

M. laticeps, Lec. loc. cit.—Elongate, æneous black, moderately shining, finely cinereo-pubescent. Head with two frontal and one vertical impression, anterior portion of epistoma membranous, yellow. Antennæ black, three basal joints on the under side pale yellow. Thorax broader than long, subopaque, finely granulate and punctured, entire margin narrowly bordered with yellow. Elytra slightly rugose, greenish-black tipped with yellow, and not

appendiculate in the male. Body winged ♂, beneath and legs black, anterior and middle coxæ and bases of their femora yellowish. Length .14 inch; 3.5 mm.

Occurs in California. Males only known.

M. (*Charopus*) *uniformis*, Motsch. Bull. Mosc. 1859, iv., p. 405, described from the female, may possibly be identical with this one. The description applies quite well to what might be the female of *laticeps* excepting that no mention is made of the very fine thoracic yellow margin.

M. lævicollis, n. sp.—Elongate, bluish-green. Head shining, smooth, front feebly impressed. Antennæ black, four basal joints paler beneath. Thorax broader than long, black with tinge of green, smooth shining, margin at hind angles reflexed. Elytra parallel ♂, bluish-green, moderately shining, surface finely scabrous, apex tinged with yellow, but not appendiculate. Body beneath and femora black, shining, tinged with green, tibiæ and tarsi piceous. Length .14 inch; 3.5 mm.

One specimen from Nebraska in the cabinet of Mr. H. Ulke, easily distinguishable from all our species by the smooth and shining head and thorax. The thorax is proportionately broader than any of our species, unicolored, and the margin more broadly reflexed at the hind angles.

M. mœrens, Lec. (*Charopus*) Proc. Acad. 1859, p. 283; (*Microlipus*) Class. Col. N. Am. p. 192.

This species resembles *laticeps* in color, sculpture and size, and differs in the thorax being somewhat larger, more narrowed behind and truncate at apex with the basal angle yellowish. The tips of the elytra are yellow and appendiculate in the males. The females are apterous and the sides of the elytra diverge toward the apex. The tips are broadly rounded not appendiculate nor yellow, and the surface less rugose than in the males. Length .12—.14 inch; 3—3.5 mm.

Occurs in California.

M. longicollis. Motsch. (*Charopus*), Bull. Mosc. 1859, iv., p. 405. Lec. (*Microlipus*) Class. Col. N. Am. p. 192.—Black, with slight tinge of blue, subopaque. Thorax longer than wide, sides nearly straight, converging to base which is nearly truncate, median broad band black, sides broadly rufous. Elytra elongate parallel, at tip yellowish and appendiculate in the males, broadly rounded in the females. Body beneath black, shining, with slight æneous tinge. Length .14—.16 inch; 3.5—4 mm.

One specimen of each sex is before me from Motschulsky, by whom they were obtained from California.

From the short descriptions given it may be seen that the following table exhibits the differences between the species:

Elytra not appendiculate in the males.

Thorax finely punctured, sub-opaque, scarcely wider than long...**laticeps.**

Thorax smooth, shining, distinctly wider than long.....**lævicollis.**

Elytra appendiculate in males.

Thorax not longer than wide, its hind angles only yellow.....**mœrens.**

Thorax longer than wide, sides broadly rufous.....**longicollis.**

Microlipus resembles *Malachius* in form and general aspect, but the species are more slender and the legs longer. The antennæ are scarcely serrate and are inserted at the sides near the anterior margin of front. The sexual characters serve also as a means of readily distinguishing *Microlipus* from all the other genera of the tribe in our fauna.

ANTHOCOMUS. Erichs.

Anthocomus, Erichs. Entomog. i., 1840, p. 97.

This genus may be distinguished from any in our fauna by its eleven-jointed antennæ inserted at the sides of the front, nearly or quite at the anterior margin; tarsi simple and similar in both sexes; elytra appendiculate in the males, not unlike those of the other sex in form.

There need be no difficulty in distinguishing the species of this genus from those of the next, as in the latter the species are all small, the epistoma much narrower between the insertion of the antennæ and the elytra of the males obliquely prolonged, tipped with yellow and with a hook-like process above.

A. Erichsonii, Lec. Proc. Acad. 1852, p. 165; *otiosus* ‡ Er. Entom. p. 99; *lateralis,* Lec. loc. cit.—Head black with tinge of green, shining, front impressed. Antennæ piceous, under side of four basal joints testaceous. Thorax broader than long, sides broadly margined with yellow, median space black with tinge of green, surface sparsely punctulate and with few greyish hairs. Elytra parallel, black with bluish or fuliginous tinge, surface finely punctured and rugulose and sparsely clothed with cinereous hairs. Under surface and femora black, with slight greenish tinge, tibiæ, tarsi and anterior coxæ piceous. Length .14—.16 inch; 3.5—4 mm.

Abundant in the Middle States.

A. flavilabris, Say (*Malachius*), Journ. Acad. Ser. i., vol. v., p. 169; Lec. (*Anthoc.*) Proc. Acad. 1852, p. 166; *cæruleus* Rand. (*Malach.*) Bost. Journ. ii., p. 16.

Resembles the preceding species in form and size, but the color is more decidedly blue, and the thorax entirely unicolored and nearly black.

Females only are known. Occurs from the Middle to the Eastern States.

A. ventralis, n. sp.—Head black, with greenish lustre, smooth, shining, front impressed. Antennæ piceous, basal joints beneath paler. Thorax one-half broader than long, smooth, shining, entirely yellowish-red. Elytra black, punctulate and finely rugose. Under side of thorax and abdomen yellow, metasternum black with tinge of green. Hinder legs entirely black, middle and anterior femora piceous, the under side testaceous. Length .14 inch; 3.5 mm.

Resembles the two preceding in form, but may readily be known by the entirely yellowish-red thorax and yellow abdomen.

Two specimens in Cabinet of Mr. H. Ulke, from Arizona.

PSEUDEBÆUS, n. g.

In this genus must be placed all our species hitherto called *Ebæus*, one of them only having been known to Erichson. The reasons which have compelled me to confer a new generic name have already been given in the preceding portion of this essay. Having simple tarsi in both sexes it must be placed near *Anthocomus* from which it differs by the prolonged elytral apices always pale in the male and with an obtuse hook on the upper side. The same sex also presents peculiarities in the terminal segments, which will be adverted to in their proper places. Abdominal segments in both sexes entirely corneous.

The species are four in number, and may be distinguished in the following manner:

Last segment of abdomen ♂ yellow, deeply grooved longitudinally and deeply emarginate at tip.
- Thorax yellow..... **apicalis.**
- Thorax black..... **oblitus.**

Last segment of abdomen ♂ black, not grooved, slightly emarginate at tip.
- Thorax yellow..... **bicolor.**
- Thorax black..... **pusillus.**

P. apicalis, Say, (*Malachius*) Journ. Acad. Ser. i. v., p. 170; Erichs. (*Ebæus*) Entom. 119; *minutus* Mels. (*Malach.*) Proc. Acad. ii., 305.—Black with tinge of blue. Thorax and legs pale yellowish testaceous. Head piceous or black. Antennæ pale testaceous, terminal joints piceous. Thorax broader than long, sides gradually narrowed to base. Elytra slightly broader at base than thorax, gradually dilated behind, sinuate near the tip and prolonged in the male, broadly dilated and obtusely rounded at apex in the female. Body beneath black. Length .07 ♂,—.09 ♀ inch; 1.75—2.25 mm.

Male.—Terminal abdominal segment yellow, prolonged, broadly and deeply channelled and deeply emarginate at tip.

Female.—Terminal segment one-half broader than long, sub-triangular.

Occurs in the Middle and Southern States.

The males are comparatively slender in their form and the apical fourth tipped with yellow. The females have the elytra much broader

and at the broadest part nearly equal to one and a half times the width of the base.

P. bicolor, Lec. (*Ebœus*) Proc. Acad. 1852, p. 167.—Similar to the preceding, but with the thorax more rounded on the sides, scarcely narrowed to base and shorter. Head yellowish-red but darker than the thorax.

Male.—Terminal abdominal segment black, not prolonged nor grooved, broadly emarginate at tip. Elytra yellow at tip.

Female.—Terminal segment broadly oval at tip.

Similar in size and color to *apicalis* and occurring with it.

P. pusillus, Say (*Malachius*) Journ. Acad. Ser. i. v., p. 170; Lec. (*Ebœus*) Proc. Acad. 1852, p. 167.

Resembles *bicolor* in form, but has the upper surface entirely black. Legs pale yellowish testaceous, femora at base piceous.

In sexual characters this species resembles *bicolor*, but the terminal segment in the male appears to be nearly rounded and not emarginate.

P. oblitus, Lec. (*Ebœus*) Proc. Acad. 1852, p. 167.

Color above totally black, antennæ at base and legs pale yellowish testaceous. Resembles *pusillus* in color, but has the thorax somewhat narrowed behind as in *apicalis*. Agrees with the latter also in its sexual characters, having the terminal abdominal segment of the male prolonged, channelled and deeply emarginate at tip, as well as pale yellowish testaceous in color.

Similar in size to *apicalis*. Occurs from Canada to Georgia.

ATTALUS, Er.

Attalus, Er. Entom. i., 1840, p. 89.
Acletus, Lec. Proc. Acad. 1852, p. 167.
Scalopterus, Motsch. Bull. Mosc. 1859, iv., p. 406.

This genus is well defined in our fauna and may be distinguished from all those with similar antennal insertion by the dissimilarity of the tarsi in the two sexes; the second joint of the anterior tarsus of the male being prolonged *over* the third and grooved beneath. As has been already noticed in the beginning of this essay there exists a very great freedom of motion between the second and third joints so that while the first two joints may be in a line with the tibiæ the last three may be bent inwards at a right angle.

The species of this genus are numerous and difficult to separate, the following table will assist in their determination:

Head elongate (as in *Tanaops*) longer than wide. Front nearly flat.
Thorax entirely rufous.
Head entirely black; elytra sub-opaque.....**rostratus.**
Occiput only black; elytra shining.....**trimaculatus.**

Thorax with median black space.
Elytra shining, pale yellow, with broad black median vitta narrowed or interrupted at middle.....**oregonensis.**
Head broad, front convex.
Body above unicolored, black. (Exception made of a narrow pale margin at tip of elytra or base of thorax.)
Antennæ strongly serrate, or almost sub-pectinate ♂.....**nigrellus.**
Antennæ moderately serrate.
Lateral and apical margins of elytra bordered with a paler color.
Thorax with pale apical margin, apex of elytra bordered with testaceous.....**basalis.**
Thorax entirely black.
Apical margin bordered with a narrow yellow space, ♂.**terminalis.**
Apical margin livid testaceous, extending obliquely along the suture.....**varians.**
Lateral and apical margins not pale.
Legs all pale testaceous (species small broadly oval).....**graunlaris.**
Legs black, at least the middle and posterior.
Body black shining, legs and antennæ black.....**mornlus.**
Body black, elytra sooty, front legs and clypeus pale....**pallifrons.**
Body above bicolored or almost entirely rufous.
Head and thorax concolored, pale rufous.
Elytra entirely black, shining.....**melanopterus.**
Elytra pale rufous with small humeral black spot.....**humeralis.**
Elytra pale rufous with an apical and basal black spot.
Tibiæ and tarsi black. Elytra dull.....**parallelus.**
Tibiæ and tarsi pale yellowish. Elytra shining.....**Pettiti.**
Elytra bluish-black, suture and apex rufous.....**rufiventris.**
Head black, thorax either margined, entirely rufous or nearly black.
Elytra entirely black. Thorax usually entirely rufous.
Legs entirely black. Elytra shining.....**nigripes.**
Anterior and middle tibiæ pale. Elytra sooty .....**otiosus.**
Elytra black, margin of suture pale or rufous.
Thorax with discal black spot. Elytral limb and suture narrowly bordered with yellow.
Abdomen black.....**circumscriptus.**
Abdomen rufous.....**rufiventris** *var.*
Thorax in great part black.
Abdomen pale yellow.....**cinctus.**
Abdomen black.....{**difficilis.** / **lobulatus.**
Elytra livid testaceous.
Suture and margin often black.....**sincetus.**

From the above table the only known species omitted is *A.* (*Scalopterus*) *rufomarginatus*, Motsch. Bull. Mosc. 1859, iv., p. 406; a species from California resembling in general aspect *Tanaops abdominalis*, Lec., and possibly closely allied to *A. oregonensis*.

In the "List," p. 53, LeConte notes *A. flavifrons*, Lec. There is no

such species described, but in Dejean's Catalogue, edit. iii., p. 122, may be found *Anthocomus flavifrons*, to which LeConte makes reference, Proc. Acad. 1852, p. 165, without, however, adding any description. There is but the merest wreck of a specimen bearing this name in LeConte's Cabinet, and it appears to be merely *Anthocomus Erichsonii* with a rufous front. At all events the name should be entirely dropped until the species to which the name is applicable shall have been described.

An examination of the above table will show two very well defined groups into which the genus is primarily divided. The first resembles *Tanaops* in many of its characters and indicates to the student the difficulty of defining genera with any great degree of accuracy in this family. In the group with broader and shorter heads the tendency is toward *Malachius*, although in this direction other points of difference occur, that render the separation, much easier of definition.

A. rostratus, n. sp.—Head black, shining, very sparsely punctured, in length greater than the thorax, and one-half longer than broad. Antennæ black, two basal joints piceous, longer than the head and thorax. Thorax pale rufous, one-third broader than long and slightly broader behind, sides feebly arcuate, base less so, margin reflexed behind and at base, and narrowly colored with black, surface shining. Elytra at base broader than thorax, sides gradually divergent behind, surface sparsely punctured and feebly rugose; color in great part blackish with lateral margin, apex and suture except at basal third pale yellowish. Body beneath and legs black shining; thorax beneath and abdomen pale rufous, terminal joint of latter black. Length (including head) .18 inch; 4.5 mm.

The head and thorax together are shorter than the elytra. The surface above and beneath is sparsely clothed with short black hairs. The form of elytral marking is very common in our species and the relations of the pale margin and black enclosed space are variable. In most species the black is reduced to a stripe, very narrow and sometimes divided at middle so as to form four spots, and in this case the sutural pale space is apt to extend to the base.

One specimen from Keyesville, California, found feeding on the flowers of Æsculus.

A. trimaculatus, Motsch. (*Scalopterus*) Bull. Mosc. 1859, iv., p. 407; *elegans*, Horn, Trans. Am. Ent. Soc. 1870, p. 86.

I have no doubt that the species described by me is the same as that described by Motschulsky. It may easily be distinguished from any of our species by its elongate head with the front rufous and the vertex and occiput black, the rufous thorax and the more shining

surface. The elytral spots are well defined and in all my specimens are the same, consisting of a broad but short common scutellar black spot, and an oval spot near the tip equidistant from apex, margin and suture. It is also more slender than any other of our species. Length .16 inch; 4 mm.

Occurs with the preceding and is not rare.

A. oregonensis, n. sp.—Head black, anterior margin of front rufous. Thorax slightly broader than long, slightly narrower behind, varying in color from rufous with median black space, to nearly black with margins and basal angles narrowly rufous; surface shining. Elytra shining, slightly rugulose, pale yellowish with median black vitta on each, broader at base and apex and very narrow at middle. Legs black, femora at basal half testaceous; thorax and abdomen beneath pale yellowish, the latter tipped with black. Length .10 inch; 2.5 mm.

The markings of the elytra vary as is indicated in the remarks under *rostratus*, the majority of the specimens have the black vitta almost divided and in one specimen in which the thorax is nearly black, the yellow margin is reduced to a minimum.

Collected in Southern Oregon, by Mr. Wm. M. Gabb.

A. nigrellus, Lec. (*Acletus*), Proc. Acad. 1852, p. 167.

I cannot find any valid differences between the type of this species and the genus *Attalus*. The antennæ have joints more acutely triangular with the angles more prolonged than is usual in the genus. The second tarsal joint is oblique to those following it in the unique before me, but the position is merely one of accident, such as has already been referred to.

The species is totally black with feeble lustre. The thorax broader than long, the angles all rounded, the hinder slightly reflexed. The elytra are sub-parallel and somewhat rugose as in many of the species. Length .12 inch; 3 mm.

Occurs in the Lake Superior region.

A. basalis, Lec. (*Anthocomus*), Proc. Acad. 1852, p. 166; Lec. List (*Attalus*), p. 54.—A small piceous black, shining species, almost as much dilated behind as *granularis*, with the base of the thorax margined with yellow. In the male the apex and a small portion of the sides and suture are also bordered with yellow. Legs varying from piceous to testaceous. Body beneath black. Length .06 inch; 1.5 mm.

Occurs in the Colorado Desert and Lower California.

A. terminalis, Er. (*Anthocomus*), Entom. p. 108; Lec. (*Attalus*), List, p. 54; *hæmorrhoidalis*, Motsch. (*Scalopterus*) Bull. Mosc. 1859, iv., p. 408.—A small species totally black above, shining and sparsely pubescent. The tips of the

male elytra and a narrow space along their sides, not attaining the humeri, are bordered with yellow. The legs are black, except usually the anterior pair and frequently the middle tibiæ which are pale testaceous. Length .10 inch; 2.5 mm.

Occurs in the Middle and Southern States.

A. varians, n. sp.—Piceous, shining, sparsely pubescent. Head black shining, anterior margin of front testaceous. Antennæ brownish testaceous. Thorax broader than long, sides feebly rounded, slightly narrowed to base which is broadly rounded; color black, shining and nearly smooth. Elytra slightly wider at base than thorax, sides divergent, color piceous, lateral margin, tip and apex of suture pale yellowish testaceous. Body beneath piceous. Legs pale yellowish testaceous, hind femora piceous. Length .08—.10 inch; 2—2.5 mm.

In this species the elytra are piceous, the tips pale testaceous with the latter color extending along the suture without involving the margin. In two specimens before me there is in addition to the apical space a juxta-sutural small spot a short distance behind the scutellum. There need be no difficulty in distinguishing this from the forms of *scincetus* as in the latter the hind angles of the thorax at least are margined with yellow and the livid color of the elytra is reduced to an oblique vitta extending from the humerus to the apex of suture. In one specimen of *varians* the elytra are entirely piceous except a very narrow lateral and apical margin.

Occurs in Texas and Louisiana. Three specimens in the Cabinet of Mr. H. Ulke.

A. granularis, Er. (*Anthocomus*), Entom. i., p. 112; Lec. (*Attalus*), List, p. 54.

Our smallest species, easily known by its broadly oval form, the elytra of the female being very nearly as broad as long. Color piceous. Legs pale testaceous. Length .04—.06 inch; 1—1.5 mm.

Occurs only in the Southern States.

A. morulus, Lec. (*Ebœus*), Proc. Acad. 1852, p. 167.—Totally black, shining, and with very little pubescence. The abdomen is piceous, the segments at their margins paler. Legs piceous or black, the anterior pair somewhat paler. Length .10 inch; 2.5 mm.

This species is widely distributed, occurring from Canada to District of Columbia and thence westward to Kansas.

A. pallifrons, Motsch. (*Anthocomus*), Bull. Mosc. 1859, iv., p. 408; Lec. (*Attalus*) List, p. 53.—A more elongate species than the preceding, with the head and thorax alone shining; elytra sub-opaque and with a sooty appearance and distinctly pubescent. The anterior margin of front and rarely the hind angles of the elytra are testaceous. Anterior legs pale testaceous, middle and hind femora piceous and their tibiæ paler. Length .14 inch; 3.5 mm.

Very distinct by the characters given in the table and is more slender than is usual in the broad headed group of the genus.

Its geographical distribution corresponds with the preceding.

A. melanopterus. Erichs. (*Anthocomus*), Entomog. i., p. 110.—Head, thorax and abdomen pale rufous. Elytra and body beneath black. Legs pale rufous, hind femora at tip piceous. Surface shining and scarcely pubescent. Length .10 inch; 2.5 mm.

A very distinct species of which I have seen but one specimen in the Cabinet of Mr. Ulke.

Occurs in Tennessee.

A. humeralis. Lec. New Species, p. 94.—Pale rufous. Antennæ brownish at tip. Elytra with small humeral black spot. Pectus piceous. Anterior and middle legs pale rufous, hind legs piceo-testaceous. Length .12 inch; 3 mm.

The above characters will readily distinguish this from any known species.

One specimen from Illinois.

A. parallelus. n. sp.—Form parallel, sub-cylindrical, sparsely pubescent. Head rufous, front slightly impressed, shining. Antennæ piceous, under side of basal joints paler. Thorax rufous with small black spot at middle of anterior margin, one-third broader than long, sides and hind angles broadly rounded, surface shining. Scutellum rufous. Elytra parallel, scarcely broader at base than thorax, surface sub-opaque, rufous, with humeral and subapical spot black. Body beneath rufous, metasternum piceous. Legs black, under side of anterior and base of hinder femora pale testaceous. Length .12 inch; 3 mm.

This species is readily known by its coloration and its parallel form, all our other species being more or less dilated behind.

One specimen collected in central Texas, by Mr. Belfrage.

A. Pettiti. n. sp.—Head rufous shining, front slightly impressed. Antennæ piceous, basal joints paler. Thorax rufous, shining, broader than long, sides and base conjointly arcuate. Elytra broader at base than thorax, dilated behind, rufous, shining and with humeral and large apical spot black. Body beneath pale rufous, metasternum black. Legs pale rufo-testaceous, hind femora, except at tips, piceous. Length .08 inch; 2 mm.

A species recalling *trimaculatus*. The elytra are more black than rufous and might be described as "black with suture, apical margin and transverse band in front of middle rufous."

It may be known from the preceding species by the more shining surface and the elytra dilated behind as is usual in the genus.

One specimen in my cabinet from Canada, presented by Mr. Johnson Pettit.

A. rufiventris. n. sp.—Head rufous, shining. Antennæ piceous with the four basal joints paler beneath. Thorax rufous, shining, one-third broader than long and slightly narrowed in front, sides rounded, base more broadly rounded. Elytra bluish-black with slightly glaucous lustre, very sparsely pubescent; entire suture and apex margined with rufous. Body beneath pale rufous, metathorax and tip of abdomen black. Anterior femora beneath, and bases of the other femora testaceous, tibiæ and femora piceous. Length .12—.16 inch; 3—4 mm.

Variety.—Occiput and narrow median thoracic stripe black.

This species resembles *circumscriptus*, but may be distinguished at all times by the rufous abdomen. In some specimens the occiput and narrow discal thoracic space are black, increasing by this variation the resemblance between the two. Rarely the sides of the elytra have a very narrow rufous margin, but never extending to base.

Occurs from Ohio to Texas.

A. nigripes. Horn, Trans. Am. Ent. Soc. 1870, p. 85.

The description of this species having been published so recently it is hardly necessary to recapitulate. It is more slender than *otiosus*, more shining and with entirely black legs. Length .08—.10 inch; 2—2.5 mm.

Occurs in Colorado.

A. otiosus. Say. (*Malachius*), Am. Ent. (Edit., Lec.) vol. i., p. 109, pl. 48, fig. 3; *nigripennis* || Say. Journ. Ac. iii., p. 184; *nigripennis*, Er. (*Anthocomus*), Entom. 108; Lec. (*Attalus*), List, p. 53.—Body black, abdominal segments margined with testaceous. Head black, anteriorly pale yellow. Thorax pale rufous, rarely with a narrow median black stripe. Elytra black, sparsely pubescent and feebly shining. Anterior legs and under side of middle femora pale testaceous, middle tibiæ and hind legs piceous. Length .12 inch; 3 mm.

A rather robust form widely distributed over our Atlantic region. The original name under which it was described might with propriety be restored in the present genus, although some confusion might arise, as it is already so widely known under the name subsequently suggested by the original describer.

A. circumscriptus. Say. (*Malachius*), Journ. Acad. iii., p. 185; Erichs. (*Anthocomus*), Entom., p. 107; Lec. (*Attalus*), List, p. 53.—Body black. Head black, labrum pale testaceous. Thorax with large discal black spot, margins pale testaceous. Elytra black, sub-opaque, lateral and apical margins and suture bordered with yellow. Anterior and middle femora pale beneath, above piceous; anterior tibiæ testaceous; middle tibiæ and hind legs piceous. Length .12 inch; 3 mm.

This species appears to be almost entirely confined to the extreme Southern States. The characters in the table and those above briefly given will distinguish it from any of our species.

A. cinctus, Lec. (*Anthocomus*), Proc. Acad. 1852, p. 166; (*Attalus*), List, p. 53.—Black, abdomen pale yellow. Head black, anteriorly pale yellow. Thorax black, shining, base narrowly margined with yellow. Elytra black, slightly pubescent, lateral and apical margins and suture narrowly bordered with yellow. Legs pale yellowish testaceous. Length .12 inch; 3 mm.

Occurs near Fort Yuma, California.

A. difficilis, Lec. (*Anthocomus*), Proc. Acad. 1852, p. 166; (*Attalus*), List, p. 54.

Closely allied to the preceding and differs as follows: Body beneath and abdomen black. Thorax at base and sides narrowly bordered with yellow. Elytra black, glaucous, not (?) pubescent, suture at base, apex and lateral margin near humerus bordered with yellow. Legs as in *circumscriptus*. Length .14 inch; 3.5 mm.

Occurs with the preceding.

A. lobulatus, Lec. List, p. 54; *lobatus* || Lec. (*Anthocomus*), Proc. Acad. 1852, p. 166.

One of our smallest species, closely allied to the preceding two, but rather more slender and with the sides of the elytra, apex and suture more broadly margined with yellow. The head is sometimes totally black, and the thorax at sides more broadly yellow. The legs are pale testaceous. Length .07 inch; 2 mm.

Occurs on the borders of the Colorado Desert of California.

A. scincetus, Say, (*Malachius*), Journ. Acad. v., p. 170; Erichs. (*Anthocomus*), Entom. p. 109; Lec. Proc. Acad. 1852, p. 166; Lec. (*Attalus*), List, p. 54; *infuscatus*, Motsch. (*Scalopterus*), Bull. Mosc. 1859, iv., p. 407.

A species easily known by its livid testaceous color. Head usually black, anteriorly testaceous. Thorax with discal spot black. Elytra livid, suture and lateral margins often brownish. Body beneath and legs yellowish, metasternum black. Length .12 inch; 3 mm.

The sutural and lateral brownish spaces become at times broader so that the pale color is reduced to a narrow oblique stripe from the humerus to apex, and in this case forms the variety *infuscatus*.

Rather abundant over our entire territory east of the Rocky Mountains.

One species I have not been able to place in any of the preceding genera.

Ebæus submarginatus, Lec. Proc. Acad. 1852, p. 167; List (*Ebæus*?) p. 54.—Longiusculus, æneo-niger, tenuiter pubescens, thorace subtiliter alutaceo, non transverso, versus basin angustato, basi rotundata obsolete rufescente, elytris vix dilatatis depressiusculis, obsolete rugosis, abdomine breviori-bus. Long. .06 unc.; 1.5 mm.

One specimen, Colorado River, California. The antennæ and tibiæ are testaceous at base.

The specimen from which the above description was drawn is a female and remains unique. It does not resemble any of the genera in our fauna. The form of thorax is that of *Endeodes* or *Temnopsophus*. I prefer calling attention to it as of a doubtful genus to placing it (with views to the contrary) in any genus in our fauna.

———o———

The BRENTHIDÆ of the United States.

BY GEORGE H. HORN, M. D.

The species are few within our faunal limits, and no territory in the world of equal size is probably as poorly represented in this family. One species only inhabits the United States and the portion of the Continent to the north, the remaining species being from the peninsula of Lower California and resemble those from the adjacent regions of Mexico, and are inserted in the present paper to render our knowledge of the fauna of that region more complete.

Two genera occur in our fauna, representing two groups as defined by Lacordaire.

Thorax convex above, not channelled..... .....**Eupsalis.**
Thorax depressed, deeply channelled.....**Brenthus.**

EUPSALIS, Lac.

Lacordaire, Genera vii., p. 430.

This genus represents the *Arrhenodides* of Lacordaire, distinguished by the conical thorax not compressed in front, the antennæ moderately robust, but not terminated by a club. Head transverse, mandibles prominent. Among the genera of the group, *Eupsalis* is known by its short and broad rostrum, the broad head, the femora slender and cylindrical at base. It is closely allied to *Arrhenodes*, in which our species had been placed, but differs by the hind angles of the head being effaced, and the surface shining.

E. maxillosus, Oliv. (*Brentus*) Ent. v. 84, p. 443, No. 17, pl. 1, fig. 1. c ♂, also, pl. 2., fig. 17, a ♂, b ♀. Lac. (*Eupsalis*) loc. cit; *septentrionis* Hbst., (*Brentus*) Col. vii., p. 183, No. 5, pl. 107, fig. 5, ♂.—Color variable from nearly black to rufous. Thorax oval slightly longer than broad, apex truncate, sides gradually divergent, base constricted; surface smooth convex, very sparsely punctulate. Elytra robust, more than twice as long as wide, slightly narrow-

ing to apex which is rotundato-truncate; surface deeply striate, striæ punctured, those nearest the suture very indistinctly; intervals convex; color usually somewhat paler than the thorax and with yellowish-white spaces irregularly placed, consisting usually of a basal series containing a longer stripe on the third and a short stripe on the fifth interval, an ante-median sinuous transverse band consisting of short stripes on the intervals, a post-median band, and a few sub-apical stripes. Body beneath black, shining. Length, including rostrum, .34—.80 inch; 9—20 mm.

Male.—Rostrum stout, basal portion shorter than the apical, apex broader than base, mandibles large, prominent. Basal portion of rostrum above with deep concavity, at sides with two fossæ immediately in front of each eye. Apical portion with carina on each side, surface sparsely tuberculate. Femora of each pair of legs with a small spine near the apex. First two abdominal segments deeply grooved at middle.

Female.—Rostrum slender, basal portion very short. Basal portion with fossa immediately behind the insertion of the antennæ and on each side two impressions in front of each eye. Apical portion slender, cylindrical. Femora all with small spine near apex. First two abdominal segments with feeble median line.

Occurs from Canada to Texas, and westward to Nebraska.

BRENTHUS, Fab.

Fabricius, Mantis. Ins. i. p. 95.

The species of this genus are (in our faunal limits) all from the Peninsula of Lower California.

The following table will enable the species to be recognized:

Thorax of usual form, elongate, conical.
  Dorsal channel deep, entire; femora all dentate ♂ ♀ .....**peninsularis.**
  Dorsal channel shallow, basal; anterior femora toothed.....**lucanus** ♀.
Thorax broadly constricted at middle.
  Dorsal channel moderate, not extending in front of constriction.
    Anterior femora alone toothed ♂ ..... **lucanus** ♂.

B. peninsularis, n. sp.—Brownish black, shining. Head obconical, constricted and quadrituberculate at base. Thorax elongate conical, constricted at base, above depressed and deeply channelled in nearly its entire length, the more deeply near base and gradually evanescent toward the apex; surface finely and very sparsely punctured. Elytra longer than the thorax, dorsum flattened, surface deeply striate, the first and second deeper at apical three-fourths, striæ punctured, intervals convex, with few very fine punctures the third interval at apex with short yellow line one-fourth the length of the elytra, the fourth interval yellow, beginning opposite the end of the preceding lineole and extending to base and not dilated, eighth interval yellow extending as far as that of the fourth, but not attaining the humerus, and with a short lineole on the ninth interval corresponding with that of the third. Femora of both sexes with a small spine near their apices. Body beneath black, shining, smooth along the middle, coarsely punctured at the sides, last three abdominal segments coarsely punctured, but more sparsely at middle.

Hind femora one-fourth shorter than the abdomen. Length .50—1.10 inch; 13—28 mm.

Male.—Rostrum and head one-third longer than thorax, basal portion longer than the apical, slightly compressed and near antennal insertion slightly explanate, apical portion slender, slightly dilated at apex. First two abdominal segments sulcate, sulcus extending forward on the metasternum nearly to the middle coxæ. Hind femur with acute spine at basal fourth, longer than the apical. Hind tibia flattened arcuate, inner edge deeply sinuate and with moderately long hairs.

Female.—Head and rostrum always equal to, rarely longer than, the thorax, basal portiou of rostrum shorter than the apical and in regular cone, apical portion slender and cylindrical. Hind femur with a single spur, hind tibia straight. Abdomen as in the male.

Resembles *B. mexicanus*, Sch., but the dorsal channel of the thorax is very much deeper. In the female of *mexicanus* there is a spine on the anterior femur only, and the ninth interval of the elytra has no lineole at apex.

Numerous specimens were collected at Cape San Lucas, Lower California, by John Xantus.

B. lucanus, n. sp.—Brownish-black, shining. Head obconical, constricted at base. Thorax elongate conical, above depressed and moderately channelled at basal half, surface minutely and sparsely punctulate. Elytra slightly longer than thorax, deeply striate, striæ punctured, and with two yellow lines on each arranged as in the preceding species, the inner with a small detached portion at apex and an internal lineole, the outer without external apical lineole. Body beneath as in *peninsularis*. Anterior femora with small tooth near apex, middle and hind femora mutic, the latter not as long as the first two abdominal segments. Length .40—.62 inch; 10—16 mm.

Male.—Rostrum and head longer than thorax, basal portion longer than the apical and of slender conical form, apical portion slender cylindrical, feebly dilated at apex. Thorax broadly constricted at middle. Second segment of abdomen with faint sulcus.

Female.—Head and rostrum not longer than thorax, basal portion short conical, apical slender cylindrical and twice as long as basal. Head broader than in male. Thorax of regular elongate conical form. Abdomen not channelled.

Resembles *anchorago* in the sexual difference in the thorax. The elytra are not appendiculate and not more prolonged in the male than the female. The females of *anchorago* and *lucanus* cannot be distinguished.

Collected with the preceding at Cape San Lucas, Lower California, by John Xantus.

The measurement given in all the species includes the entire length from tip of rostrum to apex of elytra.

Revision of the Species of LEBIA of the United States.

BY GEORGE H. HORN, M. D.

In the second part of the volume XLIII., and the first part of the volume XLIV., of the Bulletin de la Societe Imperiale des Naturalistes de Moscou, Chaudoir has published a review of the species of Lebiidæ as restricted by him. This tribe contains in our fauna only those species which have heretofore been known under the one generic name Lebia. Chaudoir proposes to divide the tribe into two primary portions, as follows:

Lateral lobes of mentum with *epilobes*.....LAMPRIADÆ.
Lateral lobes of mentum without *epilobes*.....LEBIIDÆ *veræ*.

As no mention has ever been made by any author of the "epilobes of mentum," I translate from Chaudoir's description. "The great majority of Lebiidæ have a mentum of which the lateral lobes are devoid of that appendage which in the greater number of Carabidæ borders the inner margin of the lateral lobes, and which is separated by a very distinct suture; this appendage, which varies in dimension and form, deserves to receive a name, and I propose that of *epilobe* for the same reason that the side pieces of the sternum are called episterna. Although this epilobe is wanting in many Lebiidæ it also exists in a great number."

The first group, LAMPRIADÆ, contains in our fauna the genus

LOXOPEZA, Chaudoir,

which includes all our large species with metallic green or blue elytra and which may readily be known from all our other species by the greater or less obliquity of the dilated joints of the anterior tarsus of the male. The latter character is well defined in all the species.

As thus defined *Loxopeza* contains the following species:

Fourth joint of hind tarsus deeply emarginate.
  Head and thorax rufous.
    Elytra deeply striate; antennæ pale.....**grandis.**
    Elytra finely striate; three basal joints only pale.....**atriventris.**
  Head black, thorax rufous.
    Elytra deeply striate; outer joints of antennæ darker.....**tricolor.**
Fourth joint of hind tarsus feebly emarginate.
  Head and thorax rufous; elytra deeply striate.....**majuscula.**
  Head black, thorax rufous; elytra finely striate.....**atriceps.**

L. grandis, Hentz, Trans. Am. Phil. Soc. iii., p. 58; Chaud. Bull. Mosc. 1870, ii., p. 139.

Our largest species, easily distinguished by the characters of the above table. The head is comparatively smooth, finely wrinkled within the eyes and a few punctures sparsely placed on the front and vertex. The antennæ are slender and pale, although the outer joints are darker than the three basal. Thorax nearly twice as wide as long, with median line distinctly impressed, margin broad and surface finely transversely strigose. The elytra are blue and with moderate lustre, the striæ deep but not punctured. The body beneath and legs are pale yellowish testaceous, abdomen black, the first segment usually paler. Length .38 inch; 9.5 mm.

Occurs in the Gulf States, also Illinois, Nebraska and southward to Texas.

L. atriventris, Say, Trans. Am. Phil. Soc. ii., p. 13; Dej. Species ii., p. 454; Chaud. loc. cit. p. 142.

Resembles the preceding in miniature, but has the antennæ black excepting the three basal joints. The elytra are also finely striate and the intervals flat, the striæ are also finely punctured. Length .24—.28 inch; 6—7 mm.

Occurs everywhere in the United States north of the latitude of Philadelphia and westward to Dacota.

L. tricolor, Say, Trans. Am. Phil. Soc. ii., p. 11; Dej. Spec. ii., p. 453; Chaud. loc. cit. p. 140.

Closely resembles in general appearance the preceding species, but less elongate and with black head and dark epipleuræ. The antennæ are similar to those of *atriventris*. The head is sculptured as in *grandis*, black, with labrum pale; elytra deeply striate, color decidedly green. Color beneath as in *grandis*. Length .28—.34 inch; 7—8.5 mm.

Occurs in the Middle States northward to Canada.

L. majuscula, Chaud. Bull. Mosc. 1870, p. 141.

This species so closely resembles *grandis* that it has, until the essay by Chaudoir, been confounded with it. The very feebly emarginate fourth joint of hind tarsus will, however, at once distinguish it. The form and color of the two species are identical except that the present species is perhaps somewhat narrower and less convex; the color of the elytra is less brilliant and the striæ less deep and the intervals more flattened. The thorax of *majuscula* is more strongly wrinkled

and the basal transverse impression much deeper. Some specimens from the peninsula of California have the epipleuræ brownish becoming testaceous toward their apices, otherwise they are identical with those from Arizona which correspond with the description by Chaudoir. Length .28—.38 inch; 7—9.5 mm.

Occurs in Texas, Arizona and Peninsula California.

L. atriceps. Lec. New Species, p. 5.

This species agrees with *majuscula* in having the fourth joint of the hind tarsi very feebly emarginate. Head black, punctured and feebly wrinkled. Antennæ black, three basal joints and base of fourth pale yellow testaceous. Thorax and elytra resemble those of *atriventris*. The body beneath is entirely black except the side pieces of the metasternum, the mesosternum and thorax which are rufo-testaceous. The femora are rufo-testaceous tipped with black at the knees, the tibiæ and tarsi entirely black. Varieties occur with the tibiæ brownish-testaceous. Length .26—.30 inch; 6.5—7.5 mm.

Occurs in Kansas and Nebraska.

Lebiidæ veræ.

This group contains those species in which the epilobes of the mentum are not distinct. The group is divided by Chaudoir into many genera founded on characters which appear to be of a nature too feeble to be used for generic distinction. Our genera have the tarsal claws pectinate or serrate, with teeth not exceeding in number *five*, other genera have teeth to the number of *six* or over.

The following genera occur in our fauna:

Mentum with a distinct tooth..... **Lebia.**
Mentum not toothed.
Head behind the eyes constricted..... **Dianchomena.**
Head behind the eyes not constricted..... **Aphelogenia.**

LEBIA. Latr.

This genus contains by far the larger number of our species separable in our fauna by well defined characters. The following dichotomous table will enable the student to recognize our species, it being nearly a copy of that of Chaudoir in order that foreign students may the better trace the resemblances between any of our species and those which are exotic and also to exhibit the positions therein of species not known to Chaudoir.

Elytra with fine or very shallow striæ 1
Elytra deeply striate, striæ smooth 12
1. Tarsal claws serrate rather than pectinate 2*
Tarsal claws pectinate 4
2. Palpi stout; fourth hind tarsal joint emarginate ..... **pulchella.**
Palpi slender; fourth hind tarsal joint emarginate 3
3. Head and thorax black ..... **cyanipennis.**
Head black, thorax red ..... **ruficollis.**
4. Head more or less striolate or coarsely punctured 5
Head smooth or very feebly punctured 6
5. Head striolate; elytra green ..... **marginicollis.**
Head coarsely punctured; elytra ornate ..... **lobulata.**
6. Elytra unicolored, green or olivaceous 7
Elytra blackish or piceous sometimes with basal spot 8
7. Body above unicolored 9
Body above bicolored 10
9. Color greenish or bluish; legs black ..... **viridis.**
Color olivaceous; legs piceo-testaceous or paler ..... **pumila.**
10. Head and thorax rufous; abdomen black ..... **pleuritica.**
Head black, thorax rufous; abdomen pale ..... **viridipennis.**
8. Elytra ornate with pale spots ..... **ornata.**
Elytra piceous ..... **collaris.**
12. Head longitudinally rugoso-striolate ..... **analis.**
Head nearly smooth or very slightly rugulose 13
13. Elytra sub-ovate broader behind ..... **fuscata.**
Elytra elongate parallel ..... **frigida.**

L. pulchella. Dej. Spec. ii., p. 457; Chaud. Bull. Mosc. 1870, ii., p. 172.—Head black, sparsely punctured. Antennæ with three basal joints rufous, outer joints nearly black. Thorax yellowish testaceous. Elytra yellowish testaceous, usually paler than the thorax, finely striate and with a narrow basal bluish band extending slightly on the humeri and somewhat broader at the scutellum, a broad bluish band at two-thirds from the base, usually attaining the margin, with its anterior and posterior margins triundulate and occasionally with a sutural extension uniting it with the basal band. Under surface and legs pale yellowish testaceous, tarsi often piceous. Length .24—.28 inch; 6—7 mm.

The stout palpi and style of ornamentation will at once distinguish this pretty species.

Occurs from Canada to Texas.

L. cyanipennis, Dej. Spec. v., p. 385; Chaud. loc. cit., p. 174.—Head and thorax black. Antennæ black, frequently with the basal joint somewhat paler. Elytra blue, with a tinge of violet, surface finely striate, but more deeply than *pulchella.* Body beneath and legs black. Length .24 inch; 6 mm.

* On an examination of the first three species the ungues will be found to have the teeth directed very obliquely outward and short, so that the ungues appear to be rather serrate than pectinate as in the other species.

Occurs in California from San Diego northward, but rarely as far as San Francisco.

L. ruficollis, Lec. Ann. Lyc. v., 178; Chaud. loc. cit., p. 175.

Bears a close resemblance to the preceding species, but the thorax is rufous. Length .24 inch; 6 mm.

Occurs also in the region of San Diego, California.

L. marginicollis, Dej. Spec. ii., p. 271; *var. affinis* Dej. Spec. v., p. 387; *limbicollis* Motsch. Bull. Mosc. 1859, ii., p. 145; *var. cupripennis* Chaud. Bull. Mosc. 1850, i., p. 75.

Resembles our more common *viridis*, but may be known from it and all our other green Lebiæ by the rather deeply striolate head. In color it more nearly resembles *cyanipennis* and in fact small specimens of the latter so closely resembles the present that they may readily be mistaken in a series without close observation. The margin of the thorax is pale, while the disc is black and but rarely with even the faintest bluish tinge. The variety *affinis* has the elytral intervals slightly more convex than in the typical form; *var. cupripennis*, Ch., occurs in Peru, and, as the name indicates, has the elytra cupreous. Length .17—.20 inch; 4.5—5 mm.

This species has a wide distribution occuring all over the northern portion of our continent and at Ega. Brazil and in Peru.

L. viridis, Say, Trans. Am. Phil. Soc. ii., p. 14; Dej. Spec. i., p. 271; Chaud. Bull. Mosc. 1870, ii., p. 192; *var. cyanea* Dej. Spec. v., p. 386; *var. smaragdula* Dej. Spec. v., p. 387; *var. mœsta* Lec. Agass. Lake Sup., p. 203; *Lamprias cyanellus* Motsch. Kaef. Russl., p. 42, note; Bull. Mosc. 1859, iii., p. 144.

This species is too well known to need any comment. Its color is green in all its parts above, or bluish and more rarely dark violet. These variations in color have given rise to the various synonyms above noted. The *cyanellus*, Motsch., is undoubtedly a Californian specimen of this species, for the author compares it with his own *limbicollis*, while in the comparison between it and *cyanipennis* he mentions the same points which really serve to distinguish *viridis* from *cyanipennis*, viz., "Mais elle est plus petite et la tête et le corselet sont d'une couleur *bleuatre* et *non noire*." I have, therefore, no hesitation in striking this from our list of unknown species. Length .18—.22 inch; 4.5—5.5 mm.

Occurs from Maine to Oregon and as far south as Guatimala.

L. pumila, Dej. Spec. v.. p. 388; *floricola* Harris, N. E. Farmer, 1828; *var. maculicornis* Lec. Ann. Lyc. iv., p. 195.

Our smallest species and one of the smallest in the entire genus. Its color is olivaceous above and nearly black beneath. The legs are brownish or testaceous. The antennæ are very dark and the third joint pale testaceous in the great majority of specimens. Length .12—.14 inch; 3—3.5 mm.

This species cannot be confounded with any other in our fauna excepting possibly the small forms of the variety of *viridis* known as *mœsta*, but its smaller thorax, paler legs and the pale third joint of antennæ at once distinguish it.

Occurs from Maine to Kansas and south to Georgia.

L. pleuritica, Lec. Ann. Lyc. iv., p. 193.—Head and thorax rufo-testaceous, elytra blue with a distinct tinge of green. Antennæ entirely pale rufous. Head nearly smooth, thorax finely transversely wrinkled, elytra moderately elongate, striate, intervals slightly convex, lateral margin very narrowly bordered with rufous, epipleuræ rufo-testaceous. Body beneath and legs rufous, abdomen black. Fourth joint of hind tarsi deeply emarginate. Length .26—.30 inch; 6.5—7.5 mm.

This species bears so close a resemblance to the preceding group, *Loxopeza*, that I was persuaded to refer it there until after a closer examination of the mentum. The anterior male tarsi are normally dilated as in the other Lebiæ and not obliquely.

Occurs from Canada to Texas, but not common.

L. viridipennis, Dej. Spec. ii., p. 452; Chaud. Bull. Mosc. 1870, ii., p. 194; *borea* Hentz. Trans. Am. Phil. Soc. iii., p. 256.—Head black with greenish lustre, and with few punctures. Antennæ black, three basal joints testaceous. Thorax rufous, very finely wrinkled. Elytra green, finely striato-punctate. Body beneath rufo-testaceous. Legs pale testaceous with the tips of the femora and tibiæ and the entire tarsi piceous. Length .20—.24 inch; 5—6 mm.

Occurs from Canada to Texas and not rare.

L. lobulata, Lec. New Species, p. 5.—Head piceous, nearly black, coarsely punctured between the eyes, occiput smooth. Antennæ pale, gradually thicker to the tip. Thorax piceous, margin pale. Elytra piceous, finely striate, striæ obsolete at tip and sides, and with a pale testaceous apical margin and a subterminal spot occupying a short space of the intervals 5, 6, 7, not attaining the base, and with a small lobe from its inner apical angle. Thorax beneath piceous, body and legs pale testaceous, abdomen darker especially at the sides. Epipleuræ and a narrow margin of the elytra testaceous. Length .12—.15 inch; 3—3.75 mm.

Resembles *ornata*, but has more deeply striate elytra than is usual in that species. The punctured head at once distinguishes it.

Occurs in Ohio, Virginia and Louisiana, but rare.

L. ornata, Say, Trans. Am. Phil. Soc. ii., p. 13; *axillaris* Dej. Spec. v., p. 372; *var. marginella* Dej. Spec., p. 373; *apicalis* Hald., *brunnea* Hald. Proc. Am. Phil. Soc. 1842, p. 298.—Head piceous, smooth. Antennæ with three basal joints pale, outer joints somewhat darker and slightly thicker. Thorax piceous varying to testaceous, margin paler. Elytra parallel, flat, feebly striate, piceous, lateral margin and apical spot testaceous, and a subhumeral spot of oval form, narrow the base, of the same color. Body beneath and legs testaceous. Length .18—.20 inch; 4.5—5 mm.

There appears to be some difference of opinion regarding the synonymy of the species of Say and Dejean. The former author has undoubtedly mixed two species, but refers to two varieties of his typical form which appear to be identical with varieties of Dejean's *analis*. The typical form of Say is without doubt that briefly described. As is seen above Chaudoir refers *marginella*, Dej., to this species as a variety although it would seem rather to be a variety of *analis* and did not Chaudoir have in his cabinet the types of Dejean I should doubt the validity of his determination, but with the type before him his view must be accepted as final. A variety is before me with the thorax pale yellowish testaceous.

Occurs everywhere in our country.

L. collaris, Dej. Spec. ii., p. 456; Chaud. Bull. Mosc. 1870, ii., p. 199; *nigripennis* Dej. Spec. v., p. 373; Chaud. loc. cit., p. 200.

Dejean's description, as also those of Chaudoir, do not seem to indicate any difference between *nigripennis* and *collaris* except in size and the color of the head and thorax. These characters are ordinarily good, but in the present instance the color of the head and thorax is seen to vary in our series. The elytra are rather more parallel than in *ornata* and almost totally black in color, the lateral and apical margins being narrowly bordered with pale brown. The under surface and legs are pale testaceous or sometimes a little darker. Antennæ rather short, basal joints pale, outer joints brownish. Length .20 inch; 5 mm.

Occurs in the Middle and Southern States, but rare.

L. analis, Dej. Spec. i., p. 265; Chaud. Bull. Mosc. 1870, ii., p. 211; *ornata* ‡ Say, *var.*, Trans. Am. Phil. Soc. ii., p. 14; *ornata* ‡ Lec. Ann. Lyc. iv., p. 22; *var. appendiculata* Chaud. loc. cit., p. 212; *marginella* ‡ Lec. List, p. 5.

Chaudoir is in error in supposing that Dr. LeConte has confounded the *analis* and *axillaris*. The form which has served as the type of the latter species is identical with that of Dejean. The *ornata* of LeConte is the present species. This species and its varieties may be readily known from all the others with ornate elytra, and which be-

long to *Lebia* as at present restricted, by the deeply striolate head. Head black, antennæ dark, four basal joints paler. Thorax rufo-testaceous, intricately rugulose. Elytra deeply striate, intervals more or less convex, black and ornamented as follows with pale testaceous spaces: *appendiculata*, Chaud., a humeral sub-quadrate space extending inward to the fourth stria and with a small spot appended to the inner angle of the larger one on the third and fourth intervals. The point of humerus is frequently tipped with black; lateral margin narrowly, apical margin broadly testaceous; *analis*, Dej., basal and lateral margins narrowly, apical broadly testaceous; humeral stripe short, occupying the basal portion of the intervals between the fourth and sixth striæ; *marginella* ‡ Lec. similar to *analis*, but with the markings reduced to a mere trace of each. This variety resembles *collaris*. Under surface and legs pale testaceous, abdomen darker. Epipleuræ pale.

L. fuscata, Dej. Spec. i., p. 270; Chaud. Bull. Mosc. 1870, ii., p. 230.—Head piceous, smooth. Antennæ with basal joints pale, outer joints somewhat darker. Thorax finely wrinkled, disc piceous, paler than the head, margin broad testaceous. Elytra moderately elongate, sides arcuate and broader behind the middle, surface deeply striate, color pale testaceous with the anterior three-fourths of margin narrowly bordered with black, a scutellar black space occupying the bases of the four inner interspaces, broader than long which rapidly narrows to two interspaces, and at the middle of the elytra again widens to three interspaces, and at the apex again narrows. In many specimens a narrow band connects the middle of the hinder dilation with the margin, but this varies in width and is at times absent. Body beneath and legs testaceous. Fourth tarsal joint deeply bilobed. Length .20—.30 inch; 5—7.5 mm.

The smaller variety has the transverse band broad and it resembles some of the more fully ornate varieties of *ornata*, but is readily known by the deeply striate elytra.

Occurs from Canada to Florida and westward to Missouri.

L. frigida, Chaud. Bull. Mosc. 1870, ii., p. 242.

This species is unknown to me in nature. The description and figure recall at once specimens of *ornata* with elytra more deeply striate than usual, of which several specimens are before me. Can it be possible that it is merely a variety of *L. fuscata?* Its length is about .18 inch; 4.5 mm.

Said by Chaudoir to occur near Boston.

DIANCHOMENA, Chaud.

The species comprised in this group are distinguished from the true Lebiæ by the mentum being without tooth and from *Aphelogenia* by the very evident constriction of the head behind the eyes with a greater convexity of the vertex.

In our fauna we have three:

Thorax narrowly margined.
Head and elytra green, thorax rufous.....**abdominalis.**
Thorax widely margined.
Head rugose at sides; elytra shining, moderately striate.....**scapularis.**
Head entirely rugoso-punctate; elytra less shining, deeply striate.
miranda.

D. abdominalis. Chaud. Bull. Mosc. 1843, p. 104; idem. 1871, i., p. 47.

To the characters already given it may be added: antennæ black, three basal joints piceo-testaceous, paler at their bases. Body beneath pale rufo-testaceous, meso- and metasternum and epipleuræ nearly black. Legs pale rufous, tarsi piceous. Length .20 inch; 5 mm.

Occurs in Georgia, Texas and Missouri.

D. scapularis, Dej. Spec. v., p. 377; Chaud. Bull. Mosc. 1871, i., p. 52; *Lebia solea* Hentz, Trans. Am. Phil. Soc. iii., p. 255; *conjungens* Lec. Ann. Lyc. iv., p. 194.—Pale yellowish testaceous. Head irregularly striolate at the sides, vertex nearly smooth. Antennæ piceous, basal three joints testaceous. Elytra moderately striate, shining, testaceous with three black stripes on both together, as follows: a lateral stripe from the humerus four-fifths to the tip, becoming gradually broader and rounded at its apical end, this stripe does not, however, attain the extreme lateral margin; a common median stripe broad at base, somewhat narrowed at middle gradually broader behind and rounded at tip, but not larger than the lateral stripes. Sometimes the stripes become confluent at their apices and the yellow intervening spaces reduced to a very narrow and short stripe, in which case the elytra resemble those of *analis*. Length .18—.24 inch; 4.5—6 mm.

The variety known as *conjungens*, Lec., should be referred to this species and not to *vittata*. It has all the characters of this group. Chaudoir (Bull. Mosc. 1871, i., p. 41) suspected that it might be a variety of *vittata* to which a head of *scapularis* had been inadvertently attached and he requests a verification of his suspicion. It is that variety of *scapularis* in which the black stripes become confluent at their apices.

Occurs in the Middle States, Kansas, Dacota and the Indian Territory.

D. miranda, n. sp.—Yellowish testaceous. Head rugoso-punctate over the entire space between the eyes. Antennæ slender, pale yellowish testaceous.

Thorax not broader than the head, sides not sinuate near the hind angles, disc sub-opaque, very finely rugoso-punctate. Elytra feebly shining, slightly dilated behind, surface deeply striate, and with a common median stripe cordiform at base, occupying the middle four interspaces, and then gradually narrowing to the two middle interspaces extending nearly to the apex and rounded at tip, with a small oval spot near the lateral margin on a line with the tip of the median stripe. Body beneath and legs pale testaceous. Length .22 inch; 5.5 mm.

This species cannot be confounded with any other in our fauna, it resembling superficially *scapularis*, but without the lateral stripe of that species.

Occurs rather abundantly at Camp Grant, Arizona.

APHELOGENIA, Chaud.

Mentum without epilobes and truncate at bottom of emargination and not toothed. Head not constricted. Tarsi with fourth joint of posterior pair either bilobed or not. The following of our species belong to this group, and are thus distinguished:

Thorax widely margined.
  Head and thorax pale testaceous; body beneath pale.
    Elytra distinctly striate; and with narrow black stripes.....**vittata.**
    Elytra finely striate; stripes broad ..... { **furcata.** **Spraguei.**
  Head black, thorax brownish; abdomen black.
    Elytra with striæ obsolete, ornate with spots.....**guttula.**
Thorax narrowly margined.
  Elytra black with two white stripes on each.
    Abdomen entirely rufous.....**bivittata.**
  Elytra black with one white stripe on each.
    Abdomen with two apical segments red.....**bilineata.**

A. Spraguei, n. sp.—Head pale rufous, broadly oval, sparsely punctured; palpi black. Antennæ black, two basal joints piceo-rufous, and somewhat

paler beneath. Thorax similar in form to *L. analis*, Dej., pale rufous, margin paler, surface finely wrinkled, median line finely impressed, on each side of which near the base is a small shallow fovea. Elytra pale rufo-testaceous with three broad black stripes united in nearly their whole length and each rounded at its apex as follows: a common sutural stripe occupying the four inner intervals except a small scutellar space; on each elytron an outer stripe on the intervals 6 and 7, at one-third their length invading the fifth and at apical third the eighth; surface finely striate, striæ obsoletely punctured, intervals flat with finely chagrined surface. Body beneath pale rufo-testaceous. Femora rufo-testaceous, at apices black, tibiæ and tarsi black. Fourth hind tarsal joint deeply emarginate. Length .24 inch; 6 mm.

This very distinct species bears a decided resemblance to some of the varieties of *L. analis* and *D. scapularis*, from both it may at once be known by its punctured and not grooved head. The testaceous stripe which divides the black stripes at base is short, one-fourth the length of the elytra and on the fifth interval. The conjoined black stripes at apex have a trilobed termination. The mentum at base is truncate and the head not not constricted behind, and it is therefore placed in Chaudoir's *Aphelogenia*. Several specimens received since the above description has been in type, have the basal stripe on the fifth interval wanting.

One specimen communicated by Mr. Philip S. Sprague, of Boston, who obtained it from Texas.

A. vittata, Fab, (*Carabus*) Syst. Eleut. i., p. 202; Dej. Spec. i., p. 267; Chaud. Bull. Mosc. 1871, i., p. 40; *flavovittata* Chev. Col. Mex. Cent. ii, No. 161 (fide Chaud.).—Pale yellowish testaceous, antennæ black sometimes with the basal joints paler. Elytra with a sutural black stripe occupying the two inner intervals not attaining the apex nor base, a lateral stripe on the fifth, sixth and seventh intervals, sometimes broader at apical end, but not attaining the basal nor apical margins. Body beneath pale yellowish testaceous, legs variable, sometimes totally black, usually with the tips of the femora and the entire tibiæ and tarsi black. Length .24 inch; 6 mm.

Occurs from Pennsylvania to Texas.

A. furcata, Lec. Ann. Lyc. iv., p. 193; Chaud. Bull. Mosc. 1871, i., p. 41.—Similar in color to preceding, with the elytra striped in the following manner: a narrow sutural stripe not attaining apex extending forward, becoming gradually broader to the middle of the suture, where it divides and extends forward attaining the base, the two branches thus enclosing a very narrow triangular space; an outer narrow stripe starting at the base of the seventh interval extending obliquely inward to the fourth striæ but not attaining the apical margin of the elytra. Body beneath and legs as in *vittata*. Length .24—.30 inch; 6—7.5 mm.

Occurs from Canada to Kansas and California.

The typical form of *vittata* is that described above and all the specimens before me correspond exactly with it. As compared with *furcata* the head is decidedly smooth, the thorax narrower, the elytra shorter and less deeply striate. In *furcata* I include those forms with the middle or sutural stripe furcate at its basal end. They are always larger, elytra more elongate and parallel than *vittata*. The figure which Chaudoir gives has not the sutural stripe of *vittata* furcate, but has the lateral band more dilated at the apical end than is usual in the species.

A. guttula, Lec. Ann. Lyc. v., p. 178; Chaud. Bull. Mosc. 1871, i., p. 44.—Head nearly black, sparsely punctulate. Antennæ pale testaceous. Thorax piceo-testaceous, margin paler. Elytra pale yellowish testaceous, striæ nearly obsolete, and with three brownish spots at the posterior third, as follows: a common oval spot larger than the others with a prolongation forward along the suture, and a smaller spot on each side of an irregular oval form very near the margin; apical margin narrowly broader with brown. Body beneath and legs pale testaceous, abdomen nearly black. Length .12—.16 inch; 3—4 mm.

Occurs in California, Nevada and Utah.

A. bivittata, Fab. (*Carabus*) Ent. Syst. Suppl., p. 59; Chaud. Bull. Mosc. 1871, i., p. 45; *quadrivittata*, Dej. Spec. i., p. 268.—Head black. Antennæ black, basal joints testaceous. Thorax rufous, moderataly convex, very narrowly margined. Elytra black with an oblique white stripe starting at the humerus extending nearly to the apex and ending at the second stria; a short lateral stripe near to the margin, gradually broader behind. Epipleuræ black. Body beneath and abdomen pale rufous, meso- and metasternum black. Femora rufous, black at tips, tibiæ and tarsi usually black. Length .22 inch; 5.5 mm.

Occurs in the Southern and Western States.

A. bilineata, Motsch. Bull. Mosc. 1859, iii., p. 145, pl. iii., fig. 6.

This species is almost an exact reproduction of the preceding and differs as follows: elytra with an oblique stripe, lateral stripe absent, abdomen black, last two segments rufous. Length .22 inch; 5.5 mm.

One specimen from Fort Tejon, California, in my cabinet.

Two species in our list of Lebiæ remain unaccounted for.

L. angulata, Boheman, Res. Eugen. 1858, p. 7; *goniodera* G. and H. Catalogus, p. 138.

This species is said to be from California, but the localities of the insects collected on the voyage are so mixed as to be unreliable. Chaudoir says (Bull. Mosc. 1870, ii., p. 113) that the species is a *Rhombodera;* the name proposed by Gemminger and Harold is therefore unnecessary.

L. divisa, Lec. Agassiz Lake Sup., p. 203; *concinna* || Lec. Ann. Lyc. iv., p. 192.

This insect certainly does not belong to the Lebiidæ *veræ* as restricted by Chaudoir. The following characters may serve to explain its relationship.

Mentum with broad tooth of merely semi-corneous structure, basal membrane of ligula distinct on each side; epilobes of mentum distinct, the suture dividing the tooth from the body of mentum. Ligula obtuse at apex, bisetose, slightly longer than the paroglossæ which are entirely connate with it, membranous and pilose at apex. Maxillary and labial palpi similar, terminal joints

as in *Lebia*. Tarsi robust, fourth joint deeply bilobed. Body above punctured and sparsely pubescent.

The specimen before appears to be a female, the tarsi being short and of nearly equal breadth. The male is required to determine with certainty the position it should occupy. Should it belong to the Lebiidæ its position is probably near *Dictya*, Chaud. Its deeply punctured head and thorax recalls a similar character in *Cymindis*. In fact it resembles a Cymindide more than a Lebiide. It is, however, not a *Singilis* as surmised by Chaudoir.

Head rufous, broadly oval, coarsely punctured. Antennæ black, basal joint only rufous. Thorax rufous, coarsely punctured and more densely than the head, sides broadly margined, arcuate, sinuate near the hind angles which are nearly rectangular, disc with feeble median line, basal transverse impression moderate. Elytra violet blue, basal fourth rufous, surface feebly striate, striæ finely punctured, intervals flat and irregularly sparsely punctured, the punctures coarse on the basal rufous portion. Body beneath rufous, abdomen black. Femora rufous, tibiæ and tarsi black. Epipleuræ at basal portion rufous. Length .32 inch; 8 mm.

One specimen, ♀, from Lake Superior region.

The following species of *Lebia* have been published by Motschulsky (Bull. Mosc. 1864, iii, p. 227), the only characters given being the few words contained in a synoptic table, and those characters the most subject to vary of any made use of in the separation of species. They all appear to me to be well known forms, and as far as the characters given, are of value for determination, are as follows:

L. subfigurata, Motsch.—Apparently **analis,** Dej., var. *appendiculata,* Chaud.

L. scapularis, ‡ Motsch.
L. flaviventris, Motsch. } —These two are probably varieties of **ornata,** Say.

L. brunnicollis, Motsch., 1864.—Appears to be **lobulata,** Lec. 1863.

L. flavolineata, Motsch.—Probably **scapularis,** Dej.

L. sublimbata, Motsch.—Unknown.

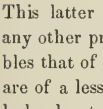
Descriptions of some new North American COLEOPTERA.

BY GEO. H. HORN, M. D.

OMUS, Esch.

O. Lecontei, n. sp.—Black, shining. Head sparsely intricately rugulose, frontal impressions shallow, deeply rugulose, clypeal region smooth. Thorax trapezoidal, slightly broader in front than long, sides arcuate and gradually convergent to base, anterior angles obtusely rounded, disc subdepressed at sides rounded, lateral margin acute, very narrow and slightly reflexed; surface feebly shining, intricately wrinkled, anterior transverse impression very faint, median line nearly obsolete. Elytra elongate oval, sides arcuate in front and gradually attenuate to apex, surface shining, and with large punctures, each distinct and with scarcely evident foveate punctures, in a double series on each elytron near the middle. Body beneath black, shining; thorax vermiculately rugulose, sides of abdominal segments finely longitudinally strigose. Terminal segment ♂ deeply notched. Length .66 inch; 17 mm.

This species is closely allied both to *californicus* and *Audouinii*, but differs very distinctly from either. The form of thorax is almost exactly that of the former species, the sculpture is intermediate between the two, being less deep than in *californicus* while the thorax of *Audouinii* is comparatively smooth. The elytra in the above species is broadest behind the middle, (fig. 2) in the present species (fig. 1) the greatest width is in front of middle and behind this point they gradually become narrower and at the same time are much less arcuate. This latter character gives this species a totally different facies from any other previously described. The punctuation of the elytra resembles that of *californicus*, but is less deep. In *Audouinii* the punctures are of a less decided character and the intervals between them irregularly elevated so that the punctures appear to become confluent. The elytral sculpture is remarkably uniform in all the specimens of *Omus* that have passed through my hands, scarcely any variation occurring in many individuals of all the species examined.



The specimens in my cabinet were collected by Mr. W. M. Gabb, near Monterey, California.

CYCHRUS, Fab.

C. rugiceps, n. sp.—Black, feebly shining. Head elongate, on side carinate, between the insertion of the antennæ deeply transversely impressed, vertex moderately convex, irregularly rugoso-tuberculate. Thorax cordate, at base moderately constricted, hind angles rectangular, sides feebly margined. Elytra regularly oval, moderately convex, surface striate, striæ punctured, intervals convex, interrupted especially at sides. Epipleuræ nearly smooth.

Anterior tarsi of male with three joints spongy pubescent beneath. Length .54 ♂—.66 ♀ inch; 14—17 mm.

This very distinct species belongs with *C. cristatus* and *C. angulatus* being almost exactly intermediate in the sculpture of the head. A deep groove on each side of the head limits within the supra-orbital ridge and its extension forward over the insertion of the antennæ, where it forms a tubercle and then diminishing in size, extends to the margin of the front. Between the base of the antennæ a deep transverse groove unites the lateral grooves and forms thus a triangular smooth elevation, the base of which is the margin of the front. The front is not carinate as in *cristatus* and *angulatus*, but moderately convex and roughened in the manner of an irregular cicatrix. In *C. cristatus* the occiput immediately behind the eyes is constricted, in the one now before me, and *angulatus*, the head is not constricted. The thorax is nearly that of *C. punctatus*, but with the disc less convex along the median line and the transverse basal impression less deep. The elytra are of regularly oval form as in the two species above cited, and the surface sculptured nearly as in *C. interruptus*. The antennæ have the basal joint moderately stout, and are about equal to half the length of the entire body.

Both sexes are before me through the kindness of Mr. G. R. Crotch, and are from the collections of Lord Walsingham, made during a recent visit to Oregon.

LIMNOCHARIS, n. g. (Hydrophilidæ.)

Allied to *Limnebius*, differing as follows:—Abdomen composed of eight segments, first five equal in length, sub-connate, sixth slightly shorter, seventh and eighth narrower than the sixth, and the eighth rounded at tip and not ciliate. Hind legs not ciliate, outer edge finely spinulose. Antennæ eight-jointed, similar to *Limnebius*, last three joints forming an oval mass. Elytra sub-acute at apex, and at tip of suture slightly dehiscent. Surface sparsely pubescent.

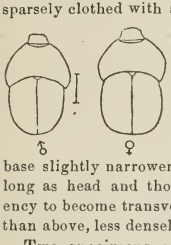
L. piceus, n. sp.—Oval, more attenuate behind, subdepressed, piceous, shining, very sparsely pubescent. Head sparsely punctulate. Antennæ and palpi testaceous. Thorax transverse, twice as wide at apex as long, at base two and a half times; apex slightly emarginate, base broadly rounded, sides slightly arcuate and gradually narrowing to apex; surface sparsely and finely punctulate. Scutellum small, triangular, broader than long. Elytra oval, gradually narrowed to apex, apex sub-acuminate and slightly dehiscent; surface less shining than thorax, finely alutaceous. Body beneath black, sub-opaque, densely punctulate, sparsely pubescent. Legs testaceous. Length .06 inch; 1.5 mm.

The entire upper surface is of uniform color and under a high power is seen to be finely alutaceous. The species recalls the form in miniature of some Australian species of *Hydroporomorpha*. The generic characters are those of *Limnebius* with the exceptions indicated. The presence of an eighth abdominal segment is a very unusual character and created some doubts in my mind at first as to the correctness of the determination, but under the compound microscope the last two segments are very plainly seen.

One specimen in my cabinet from a pool of water on the mountains south of Fort Crook, California.

LEPTINUS, Müller.

L. validus, n. sp.—Broadly oval, depressed, testaceous, feebly shining, sparsely clothed with short yellowish pubescence. Head broader than long, densely punctured, frontal margin thicker, shining, and slightly reflexed. Antennæ testaceous, longer than head and thorax. Thorax nearly twice as wide at base as long, apex emarginate and nearly as wide as the length, sides strongly arcuate at basal angles, lightly narrowed, base broadly emarginate, surface densely punctured. Scutellum broader than long. Elytra at base slightly narrower than thorax, sides feebly ♂, or broadly arcuate ♀, as long as head and thorax; surface depressed, densely punctured with a tendency to become transversely strigose. Body beneath testaceous, more shining than above, less densely punctured and pubescent. Length .20 inch; 5 mm.



♂ ♀

Two specimens are before me which, from their dissimilarity of elytral form, I take to be sexes of the same species. The male has the elytra feebly arcuate on the sides and widest at base, the female has the sides much more broadly rounded and broader at middle. In the male the thorax has, near the apex, a very shallow broad fovea composed of three depressions scarcely separated. The male anterior tarsus is more dilated than the female. The accompanying diagrams illustrate the two forms, that of the ♂ being a fair representation, that of ♀ having the sides of thorax rather too strongly arcuate. In this species the hind angles of the head are less prominent than in our other species, *americanus*, Lec., or the *testaceus*, Müll., of Europe. The prosternum distinctly separates the anterior coxæ, is prolonged slightly behind them, obtuse at tip and furnished with a brush of rather stiff hairs. The mesosternum is carinate as in the other species, and separates the middle coxæ rather more widely than in *L. americanus*. The latter species has the prosternum very short and the coxæ are contiguous.

This species was obtained by Mr. Ulke from the Hudson's Bay Region.

PITYOPHAGUS, Shuck.

P. rufipennis, n. sp.—Sub-cylindrical, black, shining, elytra rufous. Head convex, black, moderately shining, coarsely but sparsely punctured, sides behind the eyes very slightly divergent, then feebly narrowed at base. Eyes small, round, inconspicuous. Antennæ rufous. Thorax black, shining, punctured similarly to the head, subquadrate, slightly longer than wide, sides very feebly arcuate, apex truncate, angles slightly prominent, base broadly rounded. Elytra as long as head and thorax, parallel, apex truncate, base slightly broader than thorax; humeri rectangular, moderately prominent; surface rather densely, but not regularly punctured, sutural stria obliterated at basal third; color rufous. Pygidium black, densely punctured and concave. Body beneath black, shining, sparsely punctured. Legs rufous. Length .26 inch; 6.5 mm.

Similar in form to *P. cephalotes*, Lec., but larger and differing by the more fine punctuation of the elytra as well as in color.

Two specimens before me, one in my cabinet from Oregon and another in the cabinet of Dr. LeConte, collected by the Messrs. Matthews in Vancouver.

DERETAPHRUS, Newm.

D. oregonensis, n. sp.—Black, sub-opaque, elongate, elytra subcylindrical. Head black, moderately shining, punctulate. Antennæ piceous, tip of club paler. Thorax elongate obcordate, one-fourth longer than wide, sides in front rounded, then parallel, finally sinuate to the hind angle; base scarcely half as wide as length of thorax; surface convex, sparsely punctured with unequal punctures, median line very deeply impressed at basal three-fourths, impression divided by transverse ridge at anterior third. Elytra one-half longer than head and thorax, subcylindrical, parallel, at base slightly narrowed, humeri moderately prominent anteriorly, base emarginate; surface with nine rows of large deeply impressed punctures, the ninth row obsolete at tip, the intervals between rows 3—4, 5—6, 7—8, 8—9, elevated costiform, the first two and last two costæ confluent with each other at apex. Body beneath black, more shining than the upper surface, sparsely punctulate. Legs rufous. Length .46 inch; 11.5 mm.

This is one of the largest species of the genus, until now not known in our fauna. A specimen was received several years since from California, but from a source whence Australian species had been sent, and little credit was therefore given to the authenticity of the locality, especially as all the known species were Australian. Lately, however, another has been attained free from any suspicion of error, and I have therefore ventured to name it. *Deretaphrus* has place with the Bothriderini of the family COLYDIIDÆ.

The specimens before me in my own and Dr. LeConte's cabinet are

from Oregon and (?) California. Many specimens have been obtained by Lord Walsingham in a recent visit to Oregon.

PHLŒOCERUS, Bonv.

P. americanus, n. sp.—Oblong, black, feebly shining, very sparsely clothed with short black pubescence. Head densely and coarsely punctured. Thorax wider than long, sides moderately arcuate and gradually narrowed from base to apex, hind angles acute, base bisinuate, median lobe short and slightly emarginate, surface densely and coarsely punctured, Elytra oblong parallel, gradually attenuate at apical third, base slightly narrower than the thorax, surface finely striate, intervals very feebly convex, densely punctulate. Body beneath black, more shining than the upper surface, pro- and metasterum coarsely but sparsely punctured, triangle of propleuræ mere densely, abdomen finely punctulate. Length .30 inch; 7.5 mm.

One specimen from Vancouver, collected by Messrs. J. and H. Matthews.

Through the kindness of M. de Bonvouloir I have been enabled to study the unique of *Ph. subclavatus*, Bonv., in his cabinet. Our species differs by its more elongate form and black color. In both the thorax is slightly narrower between the apices of the hind angles. The principal points of difference, however, may be found in the antennæ. Those of *americanus* are as follows; first joint moderately stout, scarcely carinate in front, longer than the two following united, second in part hidden by the first and with joints 3, 4, 5 nearly equal in length, joints 6—10 one-half the length of the fifth, broader than long and each broader than the preceding, eleventh joint narrower, but longer than the preceding, and oval in form. The antennæ of the typical species are as follows: first joint thick, slightly carinate in front, as long as the two following united, second small, in part hidden by the first, third elongate, slightly longer than the two following united, fourth to eighth becoming gradually thicker and submoniliform, ninth and tenth broader and compressed, the terminal narrower and, more elongate and nearly conical, the last three joints forming a loose mass. Generically the two species entirely agree except in the form of the antennæ, and as both have been described from unique specimens and apparently of different sexes, it seems better to await the discovery of additional material before adding a new generic name, founded on characters that may be insufficient.

CARDIOPHORUS, Esch.

C. mimeticus, n. sp.—Black, moderately shining, sparsely clothed with yellowish pubescence. Head minutely punctuate, frontal margin slightly reflexed. Antennæ black, nearly as long as head and thorax. Thorax longer than wide, sides very feebly arcuate, hind angles not divergent, disc moder-

ately convex, densely and very minutely punctulate. Scutellum black. Elytra broader at base than thorax, sides moderately arcuate and gradually narrower to apex, surface striate, striæ punctured, intervals moderately convex, finely punctured; color black with large rufous humeral space, involving the epipleuræ and extending obliquely on its inner edge from below the scutellum, nearly half the length of the elytra. Body beneath black, moderately shining, densely punctulate and sparsely pubescent. Femora piceous, tibiæ and tarsi piceo-rufous. Tarsal claws simple. Length .34 inch; 8.5 mm.

Closely allied, in color, to *C. togatus*, but differs from all our species in the scarcely arcuate sides of the thorax. The thorax is very slightly narrowed in front.

One specimen from California, in the cabinet of Dr. LeConte, obtained during his recent visit in Europe from M. Thevenet.

AGRIOTES, Esch.

A. Thevenetii, n. sp.—Black, subopaque, very sparsely clothed with short pale yellowish pubescence. Head black, coarsely punctured. Antennæ nearly as long as head and thorax, pale rufous, joints 2, 3, 4 subequal. Thorax longer than wide, moderately convex, densely, coarsely and equally punctured, sides at middle nearly parallel, at anterior angles strongly rounded, hind angles acute, slightly divergent and moderately carinate. Elytra nearly twice the length of thorax and at base not wider, sides feebly arcuate and gradually narrowing to apex; surface finely striate, striæ coarsely punctured, intervals flat, sparsely punctured, punctures submuricate; color of elytra black, humeral space rufous extending obliquely on its inner margin from the sides of the scutellum to the middle of the sides. Body beneath black, densely punctured, the punctures coarser on the prothorax. Coxal plates strongly dilated within. Legs rufous. Length .34 inch; 8.5 mm.

Abundantly distinct from any *Agriotes* in our fauna, resembling *A. limosus* in form, sculpture and size. In color it strongly resembles *Cardiophorus mimeticus*, and the degree of resemblance is such that by a casual examination the species might be confounded.

Specimens from California obtained by Dr. LeConte from M. Thevenet, of Paris, to whom it is dedicated.

LIMONIUS, Esch.

L. Crotchii, n. sp.—Black, moderately shining, thorax with slight tinge of bronze, elytra with large humeral red space, surface sparsely clothed with very short yellowish pubescence. Head slightly bronzed, coarsely punctured, margin of front rounded and slightly reflexed. Antennæ as long as head and thorax, black, joints 2 and 3 together slightly longer than the fourth. Thorax longer than wide, sides moderately arcuate and converging in front, near the hind angles slightly sinuate; hind angles slightly divergent, finely carinate; surface slightly bronzed, densely and coarsely punctured. Elytra subdepressed, black with large rufous humeral space; sides nearly straight gradually convergent, and at terminal third rounded to apex; surface striate, striæ coarsely punctured, intervals moderately convex and punctulate. Body be-

neath black, shining and moderately punctured. Prosternal sutures in front canaliculate. Legs black. Length .42—.48 inch; 11—12 mm.

This species must be referred to the group with *L. mirus*, Lec., and *L. Ulkei*, Horn, it differs from the former by the sides of the thorax being more rounded and the hind angles slightly divergent, and from the latter by the anterior angles not suddenly narrowed in front. The rufous humeral spot is large, involving a narrow space across the entire base of the elytra; the inner margin of the rufous space is along the third stria and extends along it one-third the length of the elytra, then obliquely backwards to the lateral margin, involving the epipleuræ, along which it extends to the tip.

Two specimens are before me from the collections made by Lord Walsingham, in Oregon, and kindly loaned by Mr. G. R. Crotch, to whom I take very great pleasure in dedicating it.

HYPORHAGUS, Thoms.

H. gilensis. n. sp.—Elongate oval, black, moderately shining. Head densely and evenly punctured. Antennæ dark brown, outer three joints somewhat paler. Thorax trapezoidal, as long as wide at apex, base one and a half times broader, apex trnncate narrowly margined with rufous, anterior angles obtuse, sides straight, hind angles slightly reflexed; surface less coarsely punctured than the head, punctures finer and more distant along the middle, denser, and more elongate at the sides. Elytra with rows of fine punctures, the inner two nearly obsolete, especially at base, outer rows slightly elevated, intervals finely punctulate; surface more shining along the middle. Body beneath dark brown, shining, punctured less densely in front, more densely at the sides and tip of abdomen. Legs piceo-rufous, sparsely punctulate. Submentum ♂ with slight fossa and brush of hairs. Length .30 inch; 7.5 mm.

The elytra are slightly broader at base than the thorax, with the sides moderately rounded and gradually narrowing. The form of the thorax is very nearly that of the figure of *costulatus*, Thoms. (Ann. Ent. Soc. France, 1860, pl. iii.). The male has but two joints of the anterior tarsi dilated and pubescent beneath. This is the largest species in our fauna.

One specimen collected south of the Gila River in Arizona.

H. opuntiæ. n. sp.—Elongate oval, sub-opaque, black, anterior margin and sides of thorax paler. Elytra with rows of moderately coarse punctures, the outer four slightly elevated, intervals sparsely and obsoletely punctured. First two joints of anterior tarsus of male dilated and pubescent beneath. Length .22 inch; 5.5 mm.

This species resembles closely the preceding, but the thorax is less broad behind. The rows of punctures are coarser, and the inner rows entire and very distinct. The punctulations of the intervals are much finer and more obsolete. The form of the two species in almost ex-

actly the same, the present one is more opaque and transversely more convex. Several immature specimens are ferruginous.

Collected at Camp Grant, Arizona, under fallen Opuntia.

The species of *Hyporhagus* are separated by apparently feeble, though very constant characters. The two species above cited, while differing greatly to the eye, are very difficult to describe as distinct. From an examination of our species (*Lecontei*, Thoms., being unknown in nature) the following remarks have been prepared to still further assist in their identification.

Body very shining.

Anterior tarsi ♂ three joints dilated and pubescent..... ...**punctulatus.**

* * * * * * * * * (**Lecontei.**)

Body feebly shining, sub-opaque.

Three joints of anterior tarsi ♂ dilated and pubescent.

Sides of thorax slightly arcuate. Surface sub-opaque. Striæ composed of moderately coarse punctures, the inner rows coarser and more distinct than the outer. Epipleuræ black, smooth, unistriate; inflexed portion of elytra rufous, finely rugulose within and opposite the hind coxæ not wider than twice the epipleuræ.....**opaculus.**

Two joints of anterior tarsi ♂ dilated and pubesent.

Elytral rows composed of moderately coarse punctures, intervals with nearly obsolete punctulations. Surface sub-opaque. Epipleuræ opposite hind coxæ as wide as inflexed portion of elytra.....**opuntiæ.**

Elytral rows composed of fine punctures, the inner two and scutellar row nearly obsolete or not distinguishable from the punctulations; intervals distinctly but finely punctulate, evenly over the entire surface, which is feebly shining. Epipleuræ opposite the hind coxæ slightly narrower than the inflexed portion of elytra.....**gilensis.**

H. Lecontei, Thoms., is unknown to me. It resembles *punctulatus* in form and in having the sides of thorax arcuate. It differs in having the thorax more feebly punctured and the elytral rows of punctures more distinctly impressed. It is said to be from California, but, judging from the form of the three species that have occurred in the western fauna, the locality seems doubtful.

SPHALMA, n. g. (Pythidæ).

Mentum quadrate, slightly broader than long, ligula scarcely visible, rounded in front. Last joint of maxillary palpi oval, truncate at tip. Mandibles concealed beneath the labrum, arcuate and bifid at tip. Labrum transverse, feebly emarginate. Head broad, cylindrical behind the eyes, epistoma broadly rounded, feebly truncate at middle. Antennæ as long as head and thorax and slightly thicker toward the tip; joint 1 moderate, 2—5 obconical, joint 2 shorter, and 3 longer than the others, 6—10 oval, broader than the preceding joints; joint

11 elongate oval, subacute at tip. Eyes lateral, round, entire and moderately prominent. Thorax quadrate, broader than long, lateral margin acute. Elytra elongate parallel and at apical fourth gradually narrowed to tip. Epipleuræ scarcely longer than half the elytra. Legs moderate. Anterior coxæ oval, moderately prominent and contiguous, but without distinct trochantin. Middle coxæ with distinct trochantin. Tibiæ slender, spurs minute. Body elongate, glabrous.

Allied to *Pytho, Crymodes*, etc., but differs from all by its subquadrate, acutely margined thorax. Their affinities may be expressed in the following table:

Anterior coxæ contiguous; intercoxal process of prosternum short.
Middle coxæ contiguous; meso- and metasternum not meeting.....**Pytho.**
Middle coxæ separated; meso- and metasternum joined.
Mandibles concealed; thorax acutely margined.....**Sphalma.**
Mandibles prominent; margin of thorax rounded.....**Prognathus.**
Anterior coxæ distinctly separated; intercoxal process long.
Head slightly constricted behind the eyes forming a neck .....**Boros.**
Head not constricted, stout.....**Crymodes.**

The genus *Sphalma* was known to me at the time of the preparation of my revision of the Tenebrioindæ. The only specimen then known (see Trans. Am. Phil. Soc. xiv., 254) was in the cabinet of Mr. Ulke, and was inaccessible to me at that time. The only peculiarity of the insect retained in memory was the contiguity of the anterior coxæ. Through the kindness of Mr. H. Edwards, of San Francisco, I have been presented with a specimen, from which the preceding diagnosis has been prepared. The open anterior coxal cavities forbids its reference to the Tenebrionidæ.

S. quadricollis, n. sp.—Moderately elongate, sub-depressed, piceous, shining. Head coarsely but sparsely punctured. Antennæ piceo-rufous. Thorax subquadrate, slightly broader than long, apex and base truncate, sides very feebly arcuate, margin acute; surface moderately convex, sparsely and evenly punctured. Elytra broader at base than thorax, sub-parallel attenuate and obtusely rounded at apex, moderately convex, sparsely but irregularly punctured, the punctures becoming obsolete towards apex. Body beneath piceous, shining, sparsely punctured. Legs piceous or rufo-piceous. Length .36 inch; 9 mm.

Specimens in my cabinet and that of Mr. Ulke, from California. The insect is about three times as long as the width of the elytra at base.

ANDRECTOR, n. g. (Chrysomelidæ).

Form elongate oval, as in *Diabrotica* 12-*punctuta*. Surface glabrous. Head short, eyes round, prominent. Front vertical with very deep transverse fossa below the eyes, above which is a short very prominent transverse plate emarginate on its free edge. Labrum transverse, emarginate. Antennæ moderately long, equal to two-thirds the body, first joint long, slender, second short, scarcely one-fourth as long as the first, third joint as long as the first, broadly dilated at distal end and deeply emarginate in front, fourth joint half as long as the third, broadly dilated at distal end and deeply notched, joints 5—11 slender, of usual form and gradually increasing in length, the last joint acute at tip, these joints together one-third longer than joints 1—4. Anterior coxæ contiguous. Tarsal claws with broad basal dilatation.

This genus is proposed for a Chrysomelide of the tribe Galerucini, allied to *Cerotoma*, from which it differs in the deformity of the third and fourth antennal joints, the vertical and deeply excavated front. The frontal excavation is deep, extending from one side of the head to the other and slightly divided at middle by a slight ridge, the ridge forming the lower margin of the fossa is moderately prominent at its extremities and with a small tubercle at middle; above the fossa and forming its upper boundary at middle, is a short plate projecting at right angles to the front and emarginate on its free edge. The form of the antennæ is represented in the accompanying diagram and as the specimen is a male and the articulation between the third and fourth joints freely movable, it is probable that this structure has similar uses, to that for which the deformed joints of the male antennæ of *Collops* are applied, that is for holding the antennæ of the female in copulation. In every other respect the insect is a *Cerotoma*.

A. sexpunctatus, n. sp.—Pale yellow, glabrous, shining; elytra with a humeral, median and subapical small black spot on each side. Head pale yellow, occiput slightly darker, antennæ pale yellow. Thorax similar in form to *Cerotoma caminea*, smooth, sparsely punctured. Elytra oblong, broader behind the middle, shining, with three small black spots externally, surface sparsely and irregularly punctured. Scutellum piceous. Body beneath pale yellow, hind coxæ and sides of pectus piceous. Legs pale yellow, hind femora tipped with piceous. Length .22 inch; 5.5 mm.

One male from Texas. Less robust than *Cerotoma caminea* and similar in form to the spotted species of *Diabrotica*.

HYMENOPTERA TEXANA.

BY E. T. CRESSON.

The present memoir is intended to contain a list of all the species of hymenoptera known to me from Texas, excepting those belonging to the families Chrysididæ, Formicidæ and the smaller Chalcididæ, which have not been studied.

Besides the material in the collection of this Society, I have had placed at my disposal for determination and study, the splendid collection of Mr. G. W. BELFRAGE, made in Bosque Co., the fine collection in the Museum of Comparative Zoölogy at Cambridge, Mass., made by Mr. J. Boll, in Dallas Co., and a small collection of Mr. L. HEILIGBRODT, made in Travis and Bastrop Counties. To these gentlemen, and also to Dr. H. HAGEN, of the Cambridge Museum, I feel greatly indebted for the valuable assistance they have rendered me in the preparation of this work.

Of the nineteen families studied in this paper, over six hundred species are enumerated, nearly three hundred of which appear to be new, and are herein described.

Unless otherwise indicated, the types of the new species are to be found in the collection of the American Entomological Society, which has been considerably enriched by liberal donations made by the above named gentlemen.

TENTHREDINIDÆ.

Cimbex americana, var. **Ulmi.**

Cimbex americana, Leach, Zool. Miscel. iii. p. 104; Norton, Trans, Am. Ent. Soc. i., p. 40.

One ♂ specimen. (Boll.)

Abia Kennicotti.

Abia Kennicotti, Norton, Trans. Am. Ent. Soc. i., p. 47; iv. p. 77.

One ♂ specimen. (Belfrage.)

Acordulecera dorsalis.

Acordulecera dorsalis, Say, Bost. Jour. Nat. Hist. i., p. 200.

Three ♂ ♀ specimens. (Belfrage.)

Ptenos texanus.

Ptilia texana, Norton, Trans. Am. Ent. Soc. ii., p. 367.

Ptenos texana, Norton, Trans. Am. Ent. Soc. iv., p. 77.

Ten ♂ ♀ specimens. (Belfrage.)

Ptenos niger.

Ptenos niger, Norton, Trans. Am. Ent. Soc. iv., p. 77.

Nine ♂ specimens. (Belfrage.)

Ptenos nigropectus.

Ptenos nigropectus, Norton, Trans. Am. Ent. Soc. iv., p. 77.

Six ♂ ♀ specimens. (Belfrage.)

Hylotoma abdominalis.

Hylotoma abdominalis, Leach, Zool. Misc. iii., p. 123; Norton, Trans. Am. Ent. Soc. i., p. 66.

One ♀ specimen. (Belfrage.)

Hylotoma miniata.

Hylotoma miniata, Klug, Berl. Mag. vi., p. 298. Norton, Trans. Am. Ent. Soc. i. p. 70.

Three specimens. (Belfrage; Boll.)

Hylotoma rubiginosa.

Hylotoma rubiginosa, Beauv. Ins., p. 98, pl. ix. fig. 5. Norton, Trans. Am. Ent. Soc. i., p. 72.

One ♀ specimen. (Belfrage.) The legs of this specimen are entirely black.

Nematus chloreus.

Nematus chloreus, Norton, Trans. Am. Ent. Soc. i., p. 224; iv., p. 80.

One ♀ specimen. (Belfrage.)

Emphytus Bollii.

Emphytus Bollii, Norton, Trans. Am. Ent. Soc. iv., p. 80.

One ♀ specimen. (Boll. Mus. Comp. Zool.)

Hemichroa albidovariata.

Hemichroa albidovariata, Norton, Trans. Am. Ent. Soc. iv., p. 81.

Two ♀ specimens. (Belfrage.)

Hemichroa fraternalis.

Hemichroa fraternalis, Norton, Trans. Am. Ent. Soc. iv., p. 81.

One ♂ specimen. (Coll. G. W. Belfrage.)

Selandria inæquidens.

Selandria inæquidens, Norton, Trans. Am. Ent. Soc. iv., p. 84.

Two ♀ specimens. (Belfrage.)

Selandria albicollis.

Selandria albicollis, Norton, Trans. Am. Ent. Soc. iv. p. 85.

One ♂ specimen. (Belfrage.)

Macrophya excavata.

Allantus excavatus, Norton Proc. Ent. Soc. Phil. i., p. 143.

Macrophya excavata, Norton, Trans. Am. Ent. Soc. i. p. 266; iv. p. 86.

One ♀ specimen. (Belfrage.)

Tenthredo nimbipennis, Norton.

♀.—Deep black, smooth and polished, much slenderer than *atroviolaceus*; mandibles with a large white spot, tips reddish; antennæ longer than head and thorax, slender; wings large, blackish, strongly violaceous, apex paler; legs slender, anterior knees within, their tibiæ within, and the four anterior tarsi more or less except tips of joints, pale luteous; abdomen long, flattened, subfusiform, apex obtusely pointed. Length .50—.55 inch.

Three specimens. (Belfrage.)

Lophyrus Abietis.

Lophyrus Abietis, Harris, Treatise on Insects, p. 376.

One ♀ specimen. (Boll.)

Lophyrus fulva.

Lophyrus fulva, Norton, Trans. Am. Ent. Soc. iv., p. 86.

One ♀ specimen from Comal Co.

Xyela ferruginea.

Xyela ferruginea, Say, Long's 2d Exped. ii., p. 310. Norton, Trans. Am. Ent. Soc. ii., p. 349.

One ♀ specimen. (Boll.)

Xyela ænea.

Xyela ænea, Norton, Trans. Am. Ent. Soc. iv. p. 86.

Five ♂ specimens. (Belfrage.)

Tremex columba.

Sirex columba, Fabr. Syst. Ent., p. 325.

Tremex columba, Drury, Ins. ii., p. 78. Norton, Trans. Am. Ent. Soc. ii., p. 364.

Three ♂ ♀ specimens. (Belfrage; Boll.)

ICHNEUMONIDÆ.

Ichneumon viola.

Ichneumon viola, Cress. Proc. Ent. Soc. Phil. iii., p. 137.

One ♀ specimen. (Belfrage.)

Ichneumon subcyaneus.

Ichneumon subcyaneus, Cress. Proc. Ent. Soc. Phil. iii. p. 148.

One ♀ specimen. (Belfrage.)

Ichneumon agnitus.

Ichneumon agnitus, Cress. Proc. Ent. Soc. Phil. iii., p. 151.

One ♀ specimen. (Boll.)

Ichneumon cæruleus.

Ichneumon cæruleus, Cress. Proc. Ent. Soc. Phil. iii., p. 149.

One ♀ specimen. (Belfrage.)

Ichneumon zebratus.

Ichneumon zebratus, Cress. Trans. Am. Ent. Soc. i., p. 299 ♀.

♂.—Differs from the ♀ as follows:—The entire face beneath antennæ is pale lemon-yellow; antennæ entirely black, except scape beneath which is pale yellow; posterior tibiæ have the apical half black, and the basal half whitish, as well as the bases of their tarsi.

One ♂ specimen. (Boll.) A very handsome species.

Ichneumon comptus.

Ichneumon comptus, Say, Bost. Journ. Nat. Hist. i., p. 229.

One ♂ specimen. (Boll.)

Ichneumon insolens.

Ichneumon insolens, Cress. Trans. Am. Ent. Soc. i., p. 302.

Two ♂ specimens. (Boll; Heiligbrodt.)

Ichneumon Belfragei, n. sp.

♂.—Deep black, shining; sides of face and of clypeus, dot on tegulæ anteriorly, short line beneath, and the scutellum, white; mesothorax with rather close, deep punctures; scutellum subconvex; metathorax opaque, with well defined carinæ, central area lunate; wings uniformly pale fuliginous, nervures and stigma black, areolet triangular; anterior tibiæ pale in front; abdomen shining, closely punctured; second, third and base of fourth segments yellowish-ferruginous. Length .50 inch.

One specimen. (Coll. G. W. Belfrage.) Closely allied to *electus*, Cress.

Ichneumon trogiformis.

Ichneumon trogiformis, Cress. Proc. Ent. Soc. Phil. iii., p. 175.

Four ♂ ♀ specimens. (Belfrage; Boll.)

Ichneumon propitius, n. sp.

♂.—Yellowish-ferruginous or honey-yellow; face, clypeus, mandibles and anterior orbits, pale yellow; antennæ long, pale ferruginous beneath, blackish above, with a broad yellowish-white annulus above the middle, scape pale beneath; prothorax blackish anteriorly, the anterior margin pale yellow; margins of mesothorax blackish, as well as entire scutellar region and anterior and posterior margins of pleura and centrally beneath; scutellum yellow, convex, shining; metathorax blackish at apex, carinæ sharply defined, a short subacute spine on each side, central area quadrate, extending to base; wings hyaline, iridescent, nervures and stigma fuscous, areolet triangular; legs slender, four anterior coxæ yellowish beneath, apices of posterior pair, tips of their femora, apical half of their tibiæ and tips of their tarsi black, basal half of their tibiæ yellow; abdomen opaque, densely sculptured, base of first segment and extreme apical margins of second and third segments black and shining. Length .30 inch.

One specimen. (Coll. G. W. Belfrage.) Closely resembles some of

the variaties of *instabilis*, Cress., but is much smaller and with the antennæ and legs differently colored.

Ichneumon rubicundus.

Ichneumon rubicundus, Cress. Proc. Ent. Soc. Phil. iii., p. 176.

Three ♂ ♀ specimens. (Belfrage.)

Trogus obsidianator.

Trogus obsidianator, Brullé, Hym., p. 299.

One ♂ specimen. (Boll.)

Cryptus laticeps, n. sp.

♂.—Black; head broader than thorax; face broad, with a cuneiform mark on each side, two dots on the middle, clypeus, mandibles except tips, dot beneath eyes, palpi, scape beneath, anterior margin of prothorax, tegulæ, short line beneath, and the scutellum, all white; metathorax rugulose, with sharply defined carinæ; wings hyaline, stigma black, areolet rather large, pentagonal; legs, including coxæ, pale ferruginous, anterior coxæ and trochanters pale, tips of posterior femora, their tibiæ and tarsi blackish; abdomen very slender at base, apical segment with a white spot at tip above, and preceding segment with a narrow apical white line. Length .35 inch.

One specimen. (Coll. G. W. Belfrage.)

Cryptus americanus.

Cryptus americanus, Cress. Proc. Ent. Soc. Phil. iii., p. 297.

One ♀ specimen. (Heiligbrodt.)

Cryptus exulans, n. sp.

♂.—Black, subopaque, densely punctured, covered with a short thin pale pubescence; head small, eyes prominent, apical margin of clypeus deeply constricted, shining; antennæ long, joints 9—12 white above; thorax less densely punctured than head, somewhat shining; scutellum convex, shining; metathorax large, rugose, posterior face obliquely flattened, a transverse subarcuate carina near base and a short oblique one on each side of posterior face; wings uniformly smoky-hyaline, nervures black, areolet broad 5-angular, side nervures parallel; legs black, pale sericeous, anterior tibiæ more or less pale, second and following joints of posterior tarsi white; abdomen polished, rufo-castaneous, first segment long, slender, arcuated, apex slightly dilated and convex above, the stigmata not prominent, third and following segments with a short thin appressed pale pubescence. Length .50 inch.

One specimen from Comal Co. Resembles *americanus*, Cress.

Cryptus extrematis.

Cryptus extrematis, Cress. Proc. Ent. Soc. Phil. iii., p. 304.

One ♀ specimen. (Belfrage.)

Cryptus nuncius.

Cryptus nuncius, Say, Bost. Journ. Nat. Hist. i., p. 237.

Several ♂ ♀ specimens. (Belfrage; Boll.) Mr. Belfrage hatched, in October, 120 ♂ ♀ specimens of this species from a pupa of *Telea polyphemus*.

Cryptus incertus.

Cryptus incertus, Cress. Proc. Ent. Soc. Phil. iii., p. 306.

One ♀ specimen. (Belfrage.) Differs from the type only by the second abdominal segment having a transverse impressed line near the base, which may be an imperfection.

Cryptus albicollaris.

♀.—Pale ferruginous; head black, anterior orbits, clypeus, spot beneath eyes, spot on mandibles and basal joint of palpi, white; antennæ slender, black, with a broad, median, white annulus; anterior margin of prothorax broadly white, a black spot on each side; two longitudinal stripes on mesothorax, confluent behind, and scutellar region, black; tegulæ, spot beneath, scutellum and postscutellum, white; metathorax with two transverse sinuate carinæ, and a minute subacute lateral tubercle; wings hyaline, slightly dusky at tips, areolet moderate, 5-angular, side nervures nearly straight, making the cell nearly quadrate; tarsi whitish, dusky at tips; three apical segments of abdomen black; ovipositor longer than abdomen. Length .42 inch.

One specimen from Comal Co. Closely allied to *atricollaris*, Walsh, differing principally by the abdomen being black at tip.

Cryptus calipterus. Say, Bost. Journ. Nat. Hist. i., p. 234.

♀.—Ferruginous; head not wider than thorax, narrowed beneath eyes; clypeus transverse, convex at base, depressed at tip; mandibles bifid and black at tip; antennæ rather slender, ferruginous, apical third black, joints 3—6 long, subequal; metathorax broadly truncate and subexcavated behind, with a rather prominent lateral carina; wings yellow, a broad black or fuliginous band a little before middle, and a broad band of same color covering apical third, enclosing an elongate triangular yellow spot; posterior wings with two black or fuliginous bands; four anterior legs pale ferruginous, posterior tibiæ black at tips; abdomen oblong-ovate, first segment rather suddenly dilated at apex, third segment with a narrow black band at base; ovipositor longer than abdomen, sheaths black. Length .47—.55 inch.

♂.—Elongate, slender, rather paler than ♀; face yellowish; a transverse mark behind insertion of antennæ and a spot inclosing ocelli, black; antennæ long, porrect, fulvo-ferruginous, slightly dusky at apex; posterior tibiæ black, with basal third pale yellow, as well as their tarsi which are dusky at tips; abdomen long, slender, shining, thickened towards apex, first segment slender. Length .40— 65 inch.

Several ♂ ♀ specimens examined. (Belfrage; Boll; Heiligbrodt.) This and the two following species so closely resemble each other that they may easily be confounded; but upon careful comparison they are easily separated. *Calipterus* is distinguished by the antennæ having no pale annulus, by the posterior wing having *two* fuliginous bands, and by the sheaths of ovipositor being black.

Cryptus sororius, n. sp.

♂.—Differs from *calipterus* as follows:—Thorax shorter, more robust and more gibbous; head broader, face shorter, median swelling more prominent; antennæ with a yellow, not well defined, annulus about the middle; areolet of anterior wing more pentagonal than quadrangular; posterior wings yellow, with apex only fuscous; legs and abdomen more robust, first segment of latter much broader at apex; ovipositor shorter, the sheaths concolorous with abdomen. Length .47 inch.

Two specimens. (Belfrage.) Easily distinguished from *calipterus* by the more robust form, by the shape of areolet and by the color of posterior wing and sheaths of ovipositor.

Cryptus buccatus, n. sp.

♀.—Differs from *calipterus* ♀ as follows:—Head broader than thorax, subquadrate, cheeks swollen; clypeus flat and very transverse, apex truncate; mandibles pointed, not bifid; antennæ shorter and more robust, with joints short and compact, joints 8—11 lemon-yellow above; metathorax scarcely truncate behind, with lateral carina subobsolete; areolet smaller, 5-angular; posterior wing yellow, with apex and posterior margin fuliginous; posterior tibiæ not black at tips; first abdominal segment gradually, not suddenly, dilated to apex; sheaths of ovipositor pale fulvous. Length .50—.58 inch.

♂.—Differ from *calipterus* ♂ as follows:—Head larger and buccate; antennæ black, with a fulvous annulus beyond middle; the triangular yellow spot beyond stigma on anterior wing much reduced; posterior wing yellow only at base and on costal margin; legs darker in color, posterior femora and tibiæ uniformly reddish-brown, the latter with a yellowish sericeous pile; tarsi luteous, with fuscous incisures, terminal joint rufous; abdomen shorter, more robust and subclavate, apex more or less blackish. Length .55 inch.

Several ♂ ♀ specimens. (Belfrage.) Easily distinguished fro n either of the preceding species by the large, subquadrate head, swollen cheeks and short, more robust antennæ.

Cryptus comalensis, n. sp.

♀.—Head and thorax dull ferruginous, opaque, abdomen paler; minutely sculptured; antennæ blackish above, with a rather broad yellowish annulus about the middle; metathorax abrupt behind, the posterior face transversely rugose, above finely sculptured, with two transverse, sinuate, rather indistinct carinæ; wings dark fuscous, slightly violaceous, areolet rather small, 5-angular; legs ferruginous, tarsi paler, coxæ and trochanters fuscous; first abdominal segment smooth and shining, apex broadly dilated, with prominent lateral tubercles; basal margin of second segment narrowly black, the third with a black band occupying the basal fourth of the segment; ovipositor about one-half the length of abdomen, piceous, sheaths ferruginous. Length .50 inch.

One specimen collected in Comal Co.

Joppidium rubriceps, Walsh, MS.

♀.—Deep black, smooth and polished; head ferruginous, face paler; antennæ citron yellow, scape reddish, flagellum blackish at tips; tegulæ brown; metathorax rugose, sparsely pubescent laterally; prothorax sometimes tinged with reddish-brown; wings broad, blackish-fuliginous, with a strong æneous reflection, areolet large, quadrate; four anterior legs honey-yellow, femora darker towards base, coxæ black, trochanters piceous, posterior legs black, their tarsi yellow, dusky at tips; abdomen slender at base, gradually dilated towards apex, which is sometimes tinged with brownish; ovipositor more than half the length of abdomen. Length .55 inch.

♂.—Much more slender; vertex and occiput black; antennæ long, bright citron yellow, tips of flagellum dusky; bases of intermediate femora black, intermediate tarsi dusky; abdomen very slender, especially at base, smooth and polished. Length .50 inch.

Four ♂ ♀ specimens. (Belfrage; Boll.)

Joppidium apicale, n. sp.

♀.—Head dull rufous, blackish at base of antennæ, which are yellowish, darker at base and black on apical third; thorax entirely black, except a dull rufous spot on each side of prothorax anteriorly; tegulæ pale; metathorax rounded, deeply punctured, pubescent; wings blackish-violaceous; coxæ, posterior trochanters and femora black, remainder of legs yellowish-ferruginous, posterior tibiæ and tarsi paler; abdomen shining, ferruginous, first and second segments, except narrow apical margin, black, base of third segment blackish; ovipositor about one-half the length of abdomen. Length .45 inch.

One specimen collected in Comal Co. Quite distinct from *rubriceps* by the color of the legs and abdomen.

Phygadeuon texanus, n. sp.

♂.—Black, head and thorax with short, pale pubescence; mandibles rufo-piceous, palpi whitish; antennæ black above, brown beneath, scape yellow beneath; thorax shining, with sparse, not deep, punctures; metathorax very rough and uneven, with sharply defined carinæ, posterior face deeply excavated, lateral angles very prominent and obtuse; tegulæ rufo-piceous; wings hyaline, faintly tinged with yellowish, areolet 5-angular; legs honey-yellow; four anterior coxæ at base and posterior pair except tips, black; four anterior coxæ beneath, tips of posterior pair, anterior trochanters, two posterior pair except dusky spot above, and four anterior tibiæ and tarsi, whitish; posterior tibiæ pale, bases and tips dusky, their tarsi blackish; abdomen smooth, shining, ferruginous or rufo-ferruginous; first segment above with two sharply defined longitudinal carinæ, becoming obsolete before reaching apex, which is considerably dilated, sometimes the base of this segment is more or less blackish; apex of abdomen pale ferruginous. Length .28—.33 inch.

Seven ♂ specimens collected in Comal Co.

Phygadeuon intermedius, n. sp.

♀.—Subrobust; head and thorax black, abdomen and legs ferruginous, smooth and shining; spot on mandibles and palpi pale; antennæ fusco-ferruginous, paler at base, incisures of joints dusky, scape swollen, three basal joints of flagellum about equal in length, each being nearly as long as scape,

remaining joints very short; metathorax truncate behind, posterior face concave, lateral angles prominent; tegulæ pale; wings hyaline, areolet rather large, 5-angular, the upper apical nervure hyaline; legs subrobust, and including the coxæ entirely ferruginous; abdomen rather broad, ovate, smooth and shining, first segment black at base, broadly dilated at apex; ovipositor about three-fourths the length of abdomen. Length .20 inch.

Two specimens. (Belfrage.) This species seems to be intermediate between *vulgaris*, Cress., and *pusillus*, Cress., being less robust than the former, and more robust than the latter; in coloration it resembles both species.

Phygadenon timidus, n. sp.

♂.—Slender, shining; head, antennæ and thorax black; palpi pale; most of mandibles and scape beneath ferruginous; antennæ long, slender; metathorax rounded, with distinct elevated lines, forming a large central area, and with small acute lateral tubercles; tegulæ pale; wings hyaline, areolet small, irregularly 5-angular; legs, including coxæ, pale ferruginous, bases and tips of posterior tibiæ, their tarsi and tips of four anterior tarsi black; abdomen slender, first segment long, narrow, black, longitudinally aciculated; second segment blackish ferruginous on disk and narrowly so at apex; third segment entirely and most of fourth and fifth ferruginous; sides of the latter and the apical segments black. Length .20 inch.

One specimen. (Coll. G. W. Belfrage.) This may possibly be the male of the preceding species.

Hemiteles conspicuus, n. sp.

♀.—Ferruginous; apex of antennæ and tips of mandibles blackish; scutellum gibbous; pleura finely rugulose; metathorax unarmed, rugulose, with tolerably well defined longitudinal elevated lines, apex truncate, sides with sparse, short, pale pubescence; wings shorter than usual, hyaline, anterior pair with three fuscous bands, viz.: a narrow one at base of first submarginal cell, a very broad one extending from base of stigma nearly to apex of marginal cell and rounded beneath, the third one narrowly margining the apex; areolet marked by a hyaline spot, second recurrent nervure nearly straight; posterior wings hyaline, apex fuscous; legs long, slender, concolorous with body; abdomen petiolate, depressed, fuscous towards apex; three basal segments finely longitudinally aciculated, the fourth smooth and shining; apical segments with pale pubescence; first segment broadly dilated at apex; ovipositor about one-half the length of abdomen. Length .30 inch.

One specimen. (Coll. G. W. Belfrage.) A very handsome and conspicuous species; the broad middle band on anterior wing has a rounded appearance.

Hemiteles utilis.

Hemiteles utilis, Norton, Trans. Am. Ent. Soc. ii., p. 326.

One ♀ specimen. (Belfrage.)

Pezomachus texanus.

Pezomachus texanus, Cress. Can. Ent. iv., p. 64.

Two ♀ specimens. (Belfrage.)

Mesostenus introitus, n. sp.

♂.—Slender, black; face, anterior orbits, suddenly dilated on each side of lower ocellus, broad posterior orbits, clypeus, labrum, mandibles except tips, and palpi white; antennæ long, slender, black, with rather narrow white annulus, indistinct beneath; collar, spot on disk of mesothorax, tegulæ, spot before, short line beneath, spot before each intermediate coxæ, scutellum, a line on each side anteriorly, postscutellum, large spot behind posterior wing, and a large spot on metathorax above, occupying the apical three-fouths, white or yellowish-white; wings hyaline, dusky at apex, areolet minute, quadrate; legs long, slender, honey-yellow; four anterior coxæ, anterior trochanters and spot on posterior coxæ behind, pale yellow; posterior trochanters above, apices of their tibiæ, and their tarsi, except second and third joints (which are white), black; tips of four anterior tarsi dusky; abdomen long, narrow, with basal half of first segment and a rather narrow continuous band at apex of all the segments except the last, yellowish-white, terminal segment with a whitish spot. Length .40 inch.

One specimen. (Coll. G. W. Belfrage.)

Mesostenus discoidalis, n. sp.

♀.—Black, shining; eyes large and prominent; orbits, broad on cheeks, face, spot on mandibles, and palpi, white; clypeus convex, tinged with honey-yellow; antennæ as long as body, slender, black; scape beneath and a very broad annulus on flagellum, white; collar, upper margin of prothorax, discal spot on mesothorax, scutellum, band behind postscutellum, tegulæ, dot beneath, pleura except broad anterior margin, flanks of metathorax and a large mark above, enclosing at apex a black spot, whitish; metathorax with a transverse carina before middle, posterior face transversely wrinkled; wings hyaline, areolet very minute, quadrate; legs long and slender, pale honey-yellow, four anterior coxæ and anterior pair of trochanters whitish, with an exterior dusky stripe; posterior coxæ with an exterior black stripe; extreme apex of posterior tibiæ, including spurs, and basal fourth of first joint, black; remainder of posterior tarsi pure white; abdomen slender, polished, first segment white with a median black band, remaining segments black with a continuous apical white band; ovipositor half the length of abdomen. Length .38 inch.

One specimen. (Coll. G. W. Belfrage.)

Mesostenus paludatus, n. sp.

♂.—Head and thorax black; all beneath antennæ, anterior orbits, space beneath eyes, mandibles except tips, palpi and scape beneath, yellowish-white; head narrow, scarcely wider than thorax, face broad, clypeus with no distinct basal suture, mandibles broad; antennæ nearly as long as body, slender, black above, the scape short and subglobose, flagellum pale fulvous beneath; mesothorax deeply punctured, with the longitudinal lines deeply impressed; collar, upper lateral margin of prothorax, discal spot on mesothorax, scutellum, tegulæ, line beneath and pleura beneath, white; metathorax very uneven, obliquely truncate behind, with prominent lateral angles, ferruginous laterally, black at base and centrally, whitish down each lateral carina, a smooth, shining, quadrate central area, before which is a sharply defined transverse carina; wings hyaline, iridescent, areolet minute, quadrate; legs honey-yellow; four anterior coxæ, anterior trochanters and joints 2—4 of posterior tarsi,

white; extreme tips of posterior femora, apical third of their tibiæ, and first and last tarsal joints, black; abdomen narrow, shining, ferruginous, the three apical segments black. Length .35 inch.

One specimen from Comal Co. A very distinct species.

Mesostenus dejectus, n. sp.

♀.—Head and thorax dull black, legs and abdomen dull ferruginous; anterior margin of labrum white; mandibles piceous; palpi pale; antennæ black, with joints 8—10 white above; mesothorax densely, rather finely punctured, surface even; scutellum shining, subconvex; metathorax coarsely rugose, with a prominent, obtuse, whitish, lateral tubercle, and a well defined, transverse carina near base, before which the surface is much less coarsely sculptured; wings fusco-hyaline, areolet subquadrate, apical nervure obsolete; legs and abdomen uniformly ferruginous, the latter subsericeous, first segment shining and broadly dilated at apex; ovipositor not more than half the length of abdomen. Length .50 inch.

Two specimens from Comal Co.

Mesostenus thoracicus.

Mesostenus thoracicus, Cress. Proc. Ent. Soc. Phil. iii., p. 314.

One ♀ specimen. (Belfrage.)

Mesostenus gracilis.

Mesostenus gracilis, Cress. Proc. Ent. Soc. Phil. iii., p. 314.

One ♂ specimen. (Belfrage.)

Mesostenus pertinax, n. sp.

♀.—Head, pro- and mesothorax and anterior portion of pleura black; orbits, broad on cheeks, face except a median black dot, clypeus, mandibles except tips, palpi, upper lateral margin of prothorax, two abbreviated lines on disk of mesothorax, scutellum, postscutellum, tegulæ, and three spots on pleura, the lower one large and oblique, white; metathorax and posterior part of pleura, honey-yellow; a large triangular mark behind each posterior wing, a spot on flanks of metathorax, and a broad, almost circular, line on posterior face, white; pleura beneath pale honey-yellow; antennæ slender, blackish above, with a narrow whitish annulus, beneath pale on basal half; mesothorax with middle lobe rather prominent; metathorax with posterior face transversely wrinkled and with short obtuse lateral tubercles; wings hyaline, faintly dusky at extreme tips, areolet small, 5-angular, apical nervure hyaline; legs honey yellow, anterior coxæ and trochanters whitish, posterior tarsi whitish between base and apex; abdomen entirely honey-yellow or pale ferruginous, smooth and shining; ovipositor very short. Length .30 inch.

One specimen. (Coll. G. W. Belfrage.) Allied to *thoracicus* and *gracilis.*

Mesostenus arvalis, n. sp.

♀.—Honey-yellow, vertex, occiput and mesothorax more or less, tinged with fuscous; face and orbits whitish; antennæ black, with a narrow white annulus about midway, scape pale beneath; prothorax pale with whitish margins and a transverse black band behind the head; mesothorax with deeply impressed lines; pleura pale, with indistinct whitish spots; tegulæ whitish;

metathorax with indistinct elevated lines and very prominent obtuse lateral tubercles which are white, posterior face concave and transversely wrinkled; wings hyaline, areolet small, quadrate, apical nervure hyaline; legs uniformly honey-yellow, anterior coxæ and joints 2 and 3 of posterior tarsi whitish; apical segment of abdomen with a white spot. Length .35 inch.

Three specimens. (Belfrage.)

Mesostenus longicaudis, n. sp.

♀.—Slender, uniformly ferruginous, shining; antennæ long and slender, black, with part of joints 7 and 8 white above, three basal joints ferruginous; middle lobe of mesothorax convex and prominent; metathorax rounded, depressed on posterior face, rugulose, a well defined arcuate carina near base, enclosing on each side at base a smooth space; wings fusco-hyaline, areolet very narrow longitudinally; legs long and very slender, posterior tarsi slightly dusky; abdomen long, slender polished; ovipositor more than twice the length of body, pale ferruginous, sheaths black. Length of body .40 inch, of ovipositor one inch.

One specimen. (Coll. G. W. Belfrage.) A very remarkable species.

Arotes decorus.

Acœnitus decorus, Say, Bost. Journ. Nat. Hist. i., p. 248 ♀.

One ♂ specimen. (Boll.)

Thalessa lunator.

Pimpla lunator, Fabr. Ent. Syst. ii., p. 162.

Three ♂ ♀ specimens. (Belfrage; Boll.)

Ephialtes tuberculatus.

Ichneumon tuberculatus, Fourer. Grav. Ich. Eur. iii., p. 228.

One ♀ specimen. (Belfrage.)

Pimpla maura.

Pimpla maura, Cress. Trans. Am. Ent. Soc. iii., p. 145.

Two ♀ specimens from Comal Co.

Pimpla texana.

Pimpla texana, Cress. Trans. Am. Ent. Soc. iii., p. 145.

One ♀ specimen from Comal Co.

Pimpla tenuicornis.

Pimpla tenuicornis, Cress. Proc. Ent. Soc. Phil. iv., p. 267.

One ♀ specimen from Comal Co.

Pimpla annulipes.

Pimpla annulipes, Brullé, Hym., p. 102.

Three ♂ ♀ specimens. (Belfrage.)

Pimpla indagatrix.

Pimpla indagatrix, Walsh, Trans. Am. Ent. Soc., iii., p. 146.

Two ♂ specimens. (Belfrage.)

Pimpla conquisitor.

Pimpla conquisitor, Say, Bost. Journ. Nat. Hist. i., p. 232.

Three ♀ specimens. (Belfrage.)

Pimpla inquisitor.

Pimpla inquisitor, Say, Contrib. Macl. Lyc. i., p. 71.

One ♀ specimen. (Belfrage.)

Pimpla notanda.

Pimpla notanda, Cress. Trans. Am. Ent. Soc. iii., p. 148.

Two ♀ specimens. (Belfrage.)

Pimpla sanguinipes, n. sp.

♀.—Black, head and thorax closely and finely punctured; metathorax finely pubescent, opaque and finely rugose, transversely striated medially; antennæ slender, setaceous, piceous; tegulæ black; wings subhyaline, nervures and stigma black, the latter pale at base, areolet subrhomboidal; legs robust and, including coxæ, sanguineous, four posterior tarsi more or less obfuscated; abdomen robust, densely and coarsely punctured, except narrow apical margins and two or three apical segments which are smooth and shining; ovipositor about half the length of abdomen. Length .45 inch.

One specimen. (Coll. G. W. Belfrage.) Easily distinguished from all the other known N. A. species by the legs being entirely bright red.

Pimpla petulca, n. sp.

♀.—Long, slender, black, shining, feebly punctured; mandibles brown with a white spot on each; palpi white; antennæ short, brown-black above, brown beneath, whitish towards base; sides of mesothorax, scutellum and pleura, except anterior margin, sanguineous; tegulæ and short line before, white; wings hyaline, nervules and stigma fuscus, the latter pale at base, areolet subrhomboidal; legs slender, two anterior pairs, including coxæ, white; their femora above fulvous, their tibiæ at tips and apex of tarsal joints blackish; posterior coxæ and femora bright fulvous, their trochanters and knees white, their tibiæ pale, except a stain before middle, and their tips as well as the tarsi black; abdomen long, slender, closely and finely punctured, sides of segments 3—5 swollen; ovipositor longer than body, rufous, sheaths black with long pubescence. Length .35 inch.

One specimen. (Coll. G. W. Belfrage.) Closely allied to *notanda*, Cress., from which it differs by the four anterior legs being mostly white.

Pimpla animosa, n. sp.

♀.—Black, polished; palpi white; antennæ pale testaceous, paler at base beneath and darker above; tegulæ white; pleura with an iridescent reflection, flanks and apical margin of metathorax, and small ill-defined patch on each side of pleura before middle coxæ, sanguineous; wings hyaline, iridescent, nervures and stigma black, areolet incomplete, having outer nervure obsolete; legs slender, fulvo-ferruginous, anterior pair pale yellow, with white trochanters, middle tibiæ fuscous with median white annulus, posterior tibiæ black, with narrow annulus at base and broad one at middle, white, their tarsi

white with tips of joints black; abdomen dilated, depressed, dark rufous, base of the first, narrow apical margins of segments 2—5 and the following segments entirely, black; segments 2—5 each with lateral transverse swelling; apical segments polished; ovipositor about half the length of abdomen, sheaths black with long pubescence. Length .30 inch.

One specimen. (Coll. G. W. Belfrage.)

Polysphincta texana.

Polysphincta texana, Cress. Trans. Am. Ent. Soc. iii., p. 149.

One ♀ specimen from Comal Co.

Lampronota parva.

Lampronota parva, Cress. Trans. Am. Ent. Soc. iii., p. 163.

Two ♀ specimens. (Belfrage.)

Euxorides americanus.

Euxorides americanus, Cress. Trans. Am. Ent. Soc. iii., p. 167.

One ♀ specimen from Comal Co.

Xylonomus australis.

Xylonomus australis, Cress. Trans. Am. Ent. Soc. iii., p. 167.

One ♀ specimen from Comal Co.

Labena grallator.

Cryptus grallator, Say, Bost. Journ. Nat. Hist. i., p. 236.

Five ♂ ♀ specimens. (Belfrage; Boll; Heiligbrodt.)

Mesoleptus bicoloratus, n. sp.

♂.—Head and thorax black; legs and abdomen, except first segment, honey-yellow; antennæ long, slender, brown, scape beneath testaceous; head transversely ovate; thorax subopaque, somewhat gibbous anteriorly; scutellum raised, convex; tegulæ testaceous; wings hyaline, iridescent, stigma large, black, pale at base, areolet 5-angular, incomplete, the outer nervure being obsolete; legs long and slender; abdomen slender, petiolated, first segment gradually dilated at apex, which is margined with honey-yellow. Length .25 inch.

One specimen. (Coll. G. W. Belfrage.)

Mesoleptus delicatus, n. sp.

♂.—Ferruginous, abdomen paler; head transverse, subbuccate; face moderately broad, eyes ovate, rather prominent; clypeus flat, shining, tips of mandibles black; antennæ long and slender; mesothorax rounded above, with well-defined carinæ, forming on the disk a large irregular area; pleura protuberant beneath; wings large, ample, hyaline, iridescent, stigma large, black, pale at base, marginal cell broad, areolet subtriangular, legs very slender, rather paler than body, tips of posterior tibiæ slightly dusky; abdomen narrow, slender, subdepressed, first segment gradually and but slightly dilated at apex, lateral tubercles not prominent. Length .23 inch.

Two specimens. (Belfrage.)

Mesoleptus? strigosus, n. sp.

♂.—Long, very slender, honey-yellow; head subglobose, cheeks swollen, tips of mandibles and flagellum of antennæ, black, the latter long and testaceous; thorax elongate, narrowed into a neck anteriorly; metathorax as long as pro- and mesothorax combined, subconvex above and transversely striated; mesothorax subtrilobate; wings rather short, narrow, hyaline, beautifully iridescent, stigma narrow, marginal cell very long, lanceolate, areolet small, complete, subquadrate; legs long and slender, posterior coxæ unusually long, apices of four anterior tarsi dusky, posterior tarsi dusky with basal half of third joint white, spurs of posterior tarsi unequal; abdomen long and slender, slightly and gradually widened from base to apex, first segment almost cylindrical, smooth and polished, the remaining segments finely punctured. Length .30 inch.

One specimen. (Coll. G. W. Belfrage.) A very elongate slender form, with rather short narrow wings; it will probably form a new genus.

Mesoleptus? rotundiceps. n. sp.

♂.—Minute, honey-yellow, incisures of thorax blackish; antennæ long, slender, dusky; head large, subrotund, emarginate posteriorly, cheeks large, swollen; wings hyaline, iridescent, stigma large, pale at base, areolet 5-angular, incomplete, the outer nervure obsolete; legs rather long, slender; abdomen slender, petiolated, depressed, apex stained with fucous. Length .12 inch.

One specimen. (Coll. G. W. Belfrage.)

Mesoleptus? stigmaterus, n. sp.

♂.—Small, entirely honey-yellow, smooth and shining, thorax and apex of abdomen darker; head transverse, eyes and ocelli unusually prominent; tegulæ pale; wings ample, hyaline, iridescent, stigma large, broad, blackish, pale at base, marginal cell large, subtriangular, areolet incomplete; legs slender; abdomen slender, petiolated, petiole long, rather slender. Length .17 inch.

One specimen. (Coll. G. W. Belfrage.) This has much the appearance of a winged male of the genus *Pezomachus.*

Bassus sycophanta.

Bassus sycophanta, Walsh, Trans. Am. Ent. Soc. ii., p. 112.

Two specimens. (Belfrage.)

Exochodes texana, n. sp.

♂.—Differs from *mexicana* only as follows:—Size much smaller; antennæ paler; sides of prothorax, mesothorax and pleura entirely, flanks of metathorax and two spots at base above, black; wings hyaline, not yellowish, apex slightly dusky, a very small petiolated areolet; a spot on posterior coxæ beneath, as well as base within, and their femora, tinged with dusky, but not black at tips. Length .35 inch.

One specimen from Comal Co.

Exochus atrocoxalis.

Exochus atrocoxalis, Cress. Trans. Am. Ent. Soc. ii., p. 114.

One specimen. (Belfrage.)

Exochus evectus, n. sp.

♀.—Black, smooth and shining; face, line on each side of antennæ, mandibles, palpi, spot beneath eyes and a spot at summit, lemon-yellow; apex of scutellum piceous, a slender transverse yellowish line on postscutellum; tegulæ brown, with a white spot in front; a slender line beneath tegulæ and a large cuneiform spot in front, yellowish; sometimes the pleura has a yellowish line on anterior margin; wings hyaline, nervures and stigma blackish, no areolet; metathorax with a large subquadrate central area; legs short, robust, femora much swollen, especially posterior pair, yellowish-fulvous, four anterior coxæ more or less yellow, tibiæ whitish, apices of intermediate pair dusky, apical third of posterior pair fuscous, tarsi whitish with tips of joints sometimes dusky; abdomen smooth and polished, slightly pubescent towards apex. Length .30 inch.

One specimen. (Coll. G. W. Belfrage.) Closely allied to *pallipes*, Cress.

Exochus texanus, n. sp.

♂.—Black, shining, with a very short, pale golden, sericeous pile, more obvious in certain lights; face, clypeus, space beneath eyes and palpi, lemon-yellow; mandibles blackish-brown; thorax flattened above, very finely punctured; scutellum flat, polished, lateral margin carinate; metathorax shining, with six longitudinal carinæ, two on disk, short and approximate, and two on each side, apex truncate; tegulæ whitish; wings hyaline, nervures and stigma black, no areolet; legs short, robust, uniformly bright ferruginous, femora incrassate; abdomen shining, closely and finely punctured, first segment with four longitudinal carinæ, those on disk approximate; second segment with three longitudinal carinæ, the central one continued on the third segment nearly to apex, the lateral one not quite reaching the middle of same segment. Length .28 inch.

One specimen. (Coll. G. W. Belfrage.) Allied to *carinatus*, Cress.

Metopius Hageuii, n. sp.

♀.—Black, with short, pale glittering pubescence, especially on cheeks and sides of thorax; face white, with a central longitudinal black spot; narrow anterior orbits, clypeus, labrum, spot on mandibles, another beneath eyes and palpi, white; a black dot on each side of clypeus; antennæ entirely black except a dot on scape beneath; mesothorax closely and rather coarsely punctured; scutellum with a transverse, subcordate white spot at tip; spot on tegulæ, a line immediately beneath, and a cuneiform spot further beneath, white; wings hyaline, nervures and stigma black; areolet rhomboidal, shorter than in *pollinctorius;* legs black, tips of four anterior femora, their tibiæ except line behind, their tarsi except tips and basal half of posterior tibiæ, white; abdomen entirely black, coarsely punctured, with coarse deep striæ on disk of segments 2 and 3; first segment with two prominent longitudinal carinæ, more sharply defined near base; venter whitish. Length .52 inch.

One specimen. (Boll. Coll. Mus. Comp. Zool.) A very distinct species, distinguished at once from *pollinctorius*, Say, by the immaculate abdomen and banded posterior tibiæ. The ♂, of which I have one specimen from Massachusetts, differs only by the longer antennæ, by

the face being entirely white, by the four anterior femora being white before and the posterior tarsi being white except at tip of joints.

This fine species is dedicated to my friend Dr. H. Hagen in acknowledgement of the valuable assistance he has rendered me in the study of texan hymenoptera.

Exetastes bioculatus, n. sp.

♂.—Head and thorax black; metathorax, legs and abdomen ferruginous; clypeus except base, mandibles except tips, and palpi, whitish; antennæ with basal half black, middle with whitish annulus occupying about six joints, beyond this the joints are brown; two broad sublunate spots on mesothorax anteriorly; scutellum, postscutellum, tegulæ, dot before and spot beneath, white; metathorax rugose, tinged with yellowish above; wings hyaline, apex faintly dusky; four anterior coxæ yellowish-white, posterior tarsi white, base of first joint, the one or two terminal joints and apex of tibiæ, blackish; abdomen short, slender, smooth, polished, entirely ferruginous. Length .35 inch.

One specimen. (Coll. G. W. Belfrage.) May be the ♂ of *decoloratus*, Cress.

Exetastes scutellaris.

Exetastes scutellaris, Cress. Proc. Ent. Soc. Phil. iv., p. 279.

Two ♂ ♀ specimens. (Belfrage.)

Exetastes fascipennis.

Exetastes fascipennis, Cress. Proc. Ent. Soc. Phil. iv., p. 278.

Four ♀ specimens. (Belfrage.)

Ophion macrurum.

Ichneumon macrurum, Linn. Mant., p. 540.

Two specimens. (Boll.)

Ophion bilineatus.

Ophion bilineatus, Say, Macl. Lyc., p. 75; Bost. Journ. i., p. 248.

Numerous ♂ ♀ specimens. (Belfrage; Boll; Heiligbrodt.)

Ophion bifoveolatus.

Ophion bifoveolatus, Brullé, Hym., p. 139.

Four ♂ specimens. (Belfrage.)

Trachynotus texanus, n. sp.

♀.—Dull ferruginous; orbits whitish in front, pale behind, a black spot beneath base of antennæ; antennæ black, scape ferruginous; mesothorax rugose, with a lateral yellow line; scutellum yellowish, scutellar region blackish; pleura beneath and extreme sides of metathorax black; wings faintly dusky, iridescent; legs ferruginous, anterior coxæ and trochanters pale, posterior knees and tarsi fuscous; abdomen dull ferruginous, fuscous above and at apex, base of first segment yellow; ovipositor longer than first abdominal segment. Length .35 inch.

Two ♀ specimens. (Belfrage.) Closely allied to *ejuncidus*, Say.

Exochilum nigrovarium.

Exochilum nigrovarium, Brullé, Hym., p. 172.

One ♀ specimen. (Belfrage.)

Thyreodon morio.

Ichneumon morio, Fabr. Ent. Syst. ii., p. 180.

One ♀ specimen. (Boll.)

Anomalon magniceps, n. sp.

♀.—Black; head large, much wider than thorax, broadly emarginate behind, with full prominent cheeks; face, anterior orbits, lower part of cheeks, clypeus, mandibles except tips, and palpi, pale yellow; antennæ two-thirds the length of body, entirely pale orange-yellow; mesothorax, scutellum, tegulæ and sometimes a large spot beneath wings, ferruginous; metathorax coarsely reticulated, sometimes tinged with rufous on disk and at apex; wings uniformly dark fuliginous, with a brassy reflection, discoidal cell not contracted at base; legs black, anterior pair entirely, intermediate femora in front, their tibiæ except tips, their tarsi, basal half or two-thirds of posterior tibiæ, and more or less of their tarsi, ferruginous or yellowish-ferruginous; abdomen entirely black, first segment swollen at tip. Length .85 inch.

Two specimens. (Boll.)

Anomalon pallitarse, n. sp.

♂.—Deep black, shining; anterior orbits, clypeus except central black spot, spot on mandibles, and palpi, yellowish; antennæ two-thirds the length of body, orange-yellow, their basal joints black, scape yellow beneath; metathorax coarsely reticulated, with a shallow longitudinal central furrow; wings uniformly fuliginous, discoidal cell contracted at base; legs black, line on anterior femora in front, their tibiæ, intermediate tibiæ in front and all the tarsi, pale yellow; sometimes the posterior tibiæ are palish at base; abdomen entirely black, first segment not swollen at tip. Length .80 inch.

Two specimens. (Belfrage.)

Anomalon orbitalis, n. sp.

♂.—Black, shining; anterior orbits, cheeks, face, clypeus, mandibles except tips, palpi and scape beneath yellowish; antennæ about half the length of body, pale ferruginous, black at base; tegulæ ferruginous: metathorax finely reticulated, with a deep longitudinal central furrow; wings uniformly fuliginous, discal cell contracted at base; four anterior legs pale yellow, their femora honey-yellow, intermediate coxæ black at base; posterior legs black, their trochanters, basal half of tibiæ, and their tarsi, yellow; first, second and upper half of third abdominal segment pale honey-yellow, remainder black, disk of second segment not swollen at tip. Length .60 inch.

Three specimens. (Belfrage.)

Anomalon fulvescens.

Cremastus fulvescens, Cress. Proc. Ent. Soc. iv., p. 285.

Two ♂ specimens. (Belfrage.) Color honey-yellow or pale ferruginous, with vertex, anterior middle of mesothorax and tip of abdomen black.

Anomalon mellcum, n. sp.

♀.—Small, slender, uniformly honey-yellow; face, clypeus, mandibles except tips, palpi, lower posterior orbits and four anterior coxæ and trochanters, pale lemon-yellow; antennæ very slender, as long as body, dusky at tips; a black dot on anterior middle of mesothorax; metathorax pale at tip, slightly depressed medially; wings hyaline, iridescent, discoidal cell long, contracted at base; tips of posterior tibiæ and of all the tarsi, dusky; abdomen paler at base, first segment not swollen at tip, venter yellowish. Length .30 inch.

One specimen. (Coll. G. W. Belfrage.)

Anomalon metallicum.

Anomalon metallicum, Norton, Proc. Ent. Soc. Phil. i., p. 364.

One ♂ specimen. (Boll.)

Mesochorus uniformis, n. sp.

♀.—Honey-yellow or rufo-ferruginous; face pale; orbits whitish, as well as spot on mandibles, and palpi; tips of mandibles black; antennæ long and very slender, entirely pale honey-yellow; mesothoracic lines faintly impressed; scutellum prominent, convex; metathorax rounded, with distinct elevated lines; tegulæ and dot in front yellowish-white; wings hyaline, iridescent, nervures pale, stigma sometimes fuscous, pale at base, areolet large, rhomboidal; legs pale yellow, posterior coxæ, femora and tips of their tibiæ, honey-yellow, tarsal tips dusky; abdomen polished, apex more or less discolored; ovipositor very short. Length .30 inch.

Two specimens. (Coll. G. W. Belfrage.)

Mesochorus electilis, n. sp.

♀.—Black, shining; face, orbits, cheeks, clypeus and mouth, pale ferruginous; antennæ entirely black, except incisure between joints 2 and 3, which is whitish; metathorax with distinct elevated lines; tegulæ and spot beneath, pale; wings hyaline; legs, including coxæ pale ferruginous, posterior tibiæ paler, their tips and knees blackish, all the tarsi more or less obfuscated; abdomen polished, first and second segments black, a large pale yellowish-ferruginous spot covers apex of second and most of third segments; apex of third segment blackish; remainder dull ferruginous; ovipositor short. Length .20 inch.

Two specimens. (Belfrage.) Resembles *luteipes,* Cress.

Paniscus geminatus.

Ophion geminatus, Say, Contrib. Macl. Lyc. i., p. 76.

Numerous ♂ ♀ specimens. (Belfrage.) This species varies much in size.

Campoplex expertus, n. sp.

♂.—Black; face, cheeks, pleura and metathorax with short silvery pile; most of mandibles and palpi yellowish-white; antennæ entirely black; mesothorax densely sculptured, without impressed lines; metathorax with a finely impressed central longitudinal furrow; tegulæ white; wings hyaline, areolet large, slightly petiolated; coxæ black; anterior legs, intermediate tibiæ and tarsi pale yellow; four posterior trochanters and femora honey-yellow; pos-

terior tibiæ except base, and most of their tarsi blackish; base of the tibiæ and spurs pale; abdomen pale ferruginous, extreme base of first segment and disk of second, not reaching apex, black. Length .42 inch.

Two specimens. (Belfrage.)

Campoplex bellus, n. sp.

♂.—Differs from *expertus* only as follows:—Base of anterior femora, intermediate femora except apices, posterior trochanters, femora, apical two-thirds of their tibiæ and their tarsi except base of first joint, black; first and second abdominal segments entirely black. Length .42 inch.

Var. *a*.—Areolet smaller, two apical segments of abdomen black.

Two specimens. (Belfrage.)

Limneria corrupta, n. sp.

♀.—Dull black; face, cheeks, pleura, metathorax and coxæ with short silvery pile; mandibles brown at tips; palpi whitish; antennæ entirely black; mesothorax opaque, densely and finely sculptured; metathorax without distinct elevated lines, apex slightly excavated; tegulæ white; wings hyaline, areolet small, petiolated; legs ferruginous, coxæ and trochanters black; abdomen ferruginous, fourth and following segments subcompressed, base of first segment black, apex swollen, smooth and shining; ovipositor not longer than first abdominal segment. Length .43 inch.

One specimen. (Coll. G. W. Belfrage.)

Limneria illepida, n. sp.

♂.—Black, opaque; head and thorax densely sculptured, clothed with a very short yellowish pubescence, longer and very dense on metathorax; mandibles dull rufous at tips; palpi and tegulæ dull yellow; metathorax roughly sculptured, with a shallow central groove; wings subhyaline, dusky at tips, areolet minute, petiolated; coxæ and trochanters black, four anterior femora honey-yellow, their tibiæ and tarsi pale yellow; posterior legs black, their femora reddish within and extreme base of their tibiæ and of their tarsi pale; abdomen very broad, and compressed at tip, ferruginous, basal two-thirds of first and second segments and apical margin of second, black; venter yellowish. Length .45 inch.

One specimen. (Coll. G. W. Belfrage.)

Limneria infesta, n. sp.

♀.—Black, feebly punctured, and with a very short pale glittering pubescence, very dense on metathorax; spot on mandibles, palpi, scape beneath and tegulæ yellowish-white; metathorax finely sculptured, with a well-defined central groove; wings hyaline, dusky at tips, areolet minute, petiolated; legs pale ferruginous, coxæ black, trochanters and four anterior tibiæ and tarsi pale yellowish, extreme tips of posterior femora, their tibiæ and tarsi fuscous, extreme base of tibiæ and their spurs whitish; abdomen subcompressed at tip, ferruginous, first and second segments except tips, and base of third black; venter pale; ovipositor very short. Length .38 inch.

One specimen. (Coll. G. W. Belfrage.)

Limneria fura. n. sp.

♀.—Black, minutely punctured, rather shining, with a very short, fine, whitish pile; face flattened, subgranulate; mandibles large, orange-yellow, black at base and apex; scutellum subconvex, polished; metathorax short, posterior face deeply and longitudinally excavated, a bisinuate carina near base, enclosing on each side a smooth semicircular space; tegulæ white; pleura shining, with a lateral shallow excavation; wings dusky hyaline, nervures and stigma black, areolet rather large, triangular, not petiolated; femora bright rufo-ferruginous, posterior pair robust, four anterior tibiæ more or less, and their tarsi except tips of joints, pale yellowish, extreme base of posterior tibiæ, their spurs and extreme base of tarsal joints, whitish; abdomen robust, convex, subclavate, smooth and sericeous, with pale pubescence, first segment smooth and polished, apex swollen; venter pale; ovipositor half the length of abdomen. Length .35 inch.

One specimen. (Coll. G. W. Belfrage.)

Limneria annulipes.

Mesoleptus annulipes, Cress. Proc. Ent. Soc. Phil. iii., p. 257.

One ♀ specimen. (Belfrage.)

Limneria obscura.

Mesoleptus obscurus, Cress. Proc. Ent. Soc. Phil. iii., p. 261.

Three ♀ specimens. (Belfrage.)

Limneria rivalis. n. sp.

♂ ♀.—Black, opaque, clothed with a short pale glittering pubescence; mandibles except tips, palpi and tegulæ white; scape beneath honey-yellow; metathorax rounded above, with sharply defined elevated lines, forming a large elongate central area; wings hyaline, areolet small, triangular, petiolated; legs pale ferruginous, trochanters of ♀ and four anterior coxæ and trochanters and anterior tibiæ and tarsi of ♂ whitish; extreme tips of posterior tibiæ and of their tarsal joints of ♀, and their tarsi entirely of ♂, fuscous; abdomen subcompressed at tip, ferruginous, base of first segment of ♂, and first segment except apex, and base of second of ♀, black: apex of first segment rather suddenly swollen behind middle; ovipositor of ♀ half the length of abdomen. Length .20—.25 inch.

Two specimens. (Coll. G. W. Belfrage.)

Charops tibialis. n. sp.

♂.—Black, clothed with short pale pubescence; mandibles, palpi, scape beneath and tegulæ white; scutellum broad, flat, pubescent; metathorax short, subexcavated behind, coarsely sculptured; wings hyaline, iridescent; legs black, two anterior pairs except coxæ ferruginous, their trochanters whitish, posterior tibiæ with a very broad whitish annulus nearly reaching base; abdomen very slender at base, broad, compressed and truncate at apex. Length .25 inch.

One specimen. (Coll. G. W. Belfrage.)

Porizon audax, n. sp.

♂.—Black, shining; face, orbits slightly interrupted at summit of eyes, clypeus, mandibles except tips, scape beneath, and tegulæ, lemon-yellow; antennæ approximate at base, longer than head and thorax, black or brown-black; mesothorax sparsely punctured; pleura and metathorax laterally with short pale sericeous pile, the latter with well-defined elevated lines; wings short, broad, fusco-hyaline, clear at tips, stigma large, black, with a pale spot at base; legs honey-yellow, posterior coxæ black, four anterior coxæ beneath and their trochanters lemon-yellow, posterior tibiæ and tarsi more or less obfuscated; abdomen dark honey-yellow, the first and basal two-thirds of second segment black. Length .35—.40 inch.

Four specimens. (Belfrage; Boll.)

Porizon orbitalis, n. sp.

♀.—Black, subopaque, thorax densely and rather coarsely punctured; orbits broad beneath eyes and interrupted opposite ocelli, mandibles except tips, and tegulæ, lemon-yellow; apical margin of clypeus and scape beneath, rufous; antennæ approximate at base, longer than head and thorax, black; metathorax with well-defined elevated lines, sides with silvery pile; wings hyaline, large, blackish, with a pale dot at base; legs ferruginous, four posterior coxæ black, four anterior legs yellowish in front, tips of posterior tibiæ and tarsi fuscous; abdomen pale ferruginous, first and second, and a spot at base of third segments, above black; ovipositor two-thirds the length of abdomen. Length .40 inch.

♂.—Face, clypeus, most of mandibles and scape beneath, lemon-yellow; posterior tibiæ and tarsi darker; third abdominal segment entirely ferruginous.

Three specimens. (Belfrage.)

Porizon hyalinipennis, n. sp.

♀.—Black, shining; orbits, clypeus, mandibles except tips, spot on scape beneath and tegulæ, pale lemon-yellow; tip of clypeus tinged with honey-yellow; antennæ longer than head and thorax, black; thorax distinctly but not coarsely punctured; pleura and metathorax with fine whitish pile, the latter more coarsely punctured, with well-defined elevated lines; wings whitish hyaline, nervures pale, stigma large, black, pale at base; four anterior coxæ, all the trochanters and base of tarsi, pale yellow, posterior coxæ and tips of their tibiæ black, tarsal tips fuscous; abdomen robust, pale ferruginous, first and second segments above black; venter lemon-yellow; ovipositor longer than first abdominal segment. Length .38 inch.

♂.—Face yellow; four anterior legs paler; apical segment of abdomen more or less marked with black above.

Four specimens. (Belfrage.) Resembles *orbitalis*, but is much less coarsely punctured and with clearer wings.

Porizon stigmaterus, n. sp.

♂ ♀.—Black; spot on mandibles, extreme base of wings, venter of ♀, and clypeus and tegulæ of ♂, lemon-yellow; wings hyaline, iridescent, nervures and stigma blackish, the latter large and conspicuous; legs dull honey-yellow, tinged with fuscous, coxæ and trochanters black, base and apex of posterior

tibiæ and tarsal tips fuscous; abdomen subrobust; ovipositor nearly as long as abdomen. Length .30—.32 inch.

Eight specimens. (Belfrage.)

Porizon facilis, n. sp.

♀.—Long, slender, honey-yellow or pale ferruginous; head lemon-yellow, two spots behind antennæ, sometimes confluent, spot covering ocelli, occiput and tips of mandibles, black; antennæ longer than head and thorax, black or brown-black, scape yellowish; thorax more or less tinged with yellow; mesothorax generally with a broad central black stripe, margined laterally with lemon-yellow; collar, tegulæ and scutellum pale yellow; pleura beneath and base of metathorax above more or less black, the latter with well-defined elevated lines, the dorsal surface finely transversely striated; wings hyaline, iridescent, nervures and stigma pale fuscous; legs long and slender, pale honey-yellow, coxæ, trochanters and knees more or less pale yellow, base and apex of posterior tibiæ and tips of tarsal joints fuscous; abdomen long and slender, base of first, basal two-thirds of second and spot at base of two or three following segments black; venter yellow; ovipositor as long as abdomen. Length .30—.33 inch.

♂.—Rather more slender, eyes larger, thorax more varied laterally with pale yellow; the black on metathorax extending to apex; pleura with a black spot on each side anteriorly; first and second segments of abdomen except tips and more or less of base of remaining segments black.

Several specimens. (Belfrage.)

Porizon macer, n. sp.

♀.—Head black, lower part of face, orbits, clypeus, mandibles, palpi, tegulæ and scutellum, lemon-yellow; antennæ as long as head and thorax, black; thorax rufo-ferruginous, a broad central stripe on mesothorax, scutellar region, base of metathorax and tip above, the extreme sides, spot beneath wings and pleura beneath, black; metathorax minutely and strongly punctured, with well-defined elevated lines, posterior face transversely striated; wings hyaline, iridescent, stigma large, pale fuscous; four anterior legs yellow, posterior pair honey-yellow, with pale trochanters, base of their coxæ black, base and apex of their tibiæ and most of their tarsi fuscous; abdomen long, slender, yellow-ferruginous, first and second segments above except tips and base of third segment black, apical segments dusky above; ovipositor three-fourths the length of abdomen. Length .30 inch.

♂.—Black; face, orbits, clypeus, mandibles, palpi, scape beneath, tegulæ and scutellum, pale yellow; antennæ as long as abdomen; lateral margin of mesothorax, prothorax except lateral middle, and, long oblique stripe on each side of pleura, yellow-ferruginous; legs ferruginous; base of abdominal segments 3—5 above and apex black. Length .26 inch.

Three specimens. (Belfrage.) This may be nothing more than an extreme variety of *facilis*.

Porizon? agilis, n. sp.

♀.—Ferruginous; spot enclosing ocelli and two large spots on occiput, fuscous; mandibles white with black tips; antennæ blackish, scape ferruginous; spot on mesothorax in front and on each side posteriorly, scutellar region

and metathorax above except apex, black; metathorax with sharply-defined elevated lines; wings hyaline, iridescent, nervures and stigma fuscous; legs pale yellow, tinged with honey-yellow, especially posterior coxæ and femora, base of posterior trochanters, stripe on sides of their femora, base and apex of their tibiæ and their tarsi except base, fuscous; tibial spurs white; posterior femora with a short acute spine between middle and apex; abdomen slender, first segment except base and second segment except apex blackish; apical segments dusky above; venter pale yellow; ovipositor as long as abdomen. Length .20 inch.

One specimen. (Coll. G. W. Belfrage.)

Porizon? delicatus. n. sp.

♂.—Pale honey-yellow; head much broader than thorax, eyes large and prominent; face, orbits, clypeus, mandibles except tips, and scape pale lemon-yellow, middle of face tinged with honey-yellow; antennæ three-fourths as long as body, dusky; thorax uniformly pale honey-yellow; metathorax with distinct elevated lines; wings hyaline, iridescent, nervures and stigma pale fuscous; legs slender, pale yellow, white at base, tips of posterior tibiæ dusky; abdomen more or less black at base of all the segments above, especially that of second segment. Length .20 inch.

One specimen. (Coll. G. W. Belfrage.)

Cremastus piceus. n. sp.

♀.—Shining piceous-black; mandibles except tips white; orbits and tip of clypeus honey-yellow; metathorax with well-defined elevated lines; tegulæ and extreme base of wings yellowish-white; wings hyaline, iridescent, nervures and stigma pale; legs dull honey-yellow, tinged with ferruginous, posterior coxæ black, their tibiæ and tarsi more or less obfuscate; abdomen polished, piceous, paler at apex; venter with pale bands; ovipositor porrect, two-thirds the length of abdomen. Length .16 inch.

One specimen. (Coll. G. W. Belfrage.)

Ephosoma texana. n. sp.

♀.—Black; orbits, face, clypeus, mandibles, palpi, scape beneath, collar, prothorax except lateral triangular black spot and upper central margin, two stripes on metathorax, scutellum, four stripes on metathorax, the lateral one interrupted near base, tegulæ, angular line beneath, spot beneath posterior wings, an oblique forked line on each side of pleura and a spot beneath, all very pale yellowish-white; antennæ short, black; mesothorax with large distinct punctures; metathorax slightly excavated centrally; wings hyaline, areolet minute, petiolated; four anterior legs white, their femora pale honey-yellow, stripe on trochanters behind and tips of tarsi, black; posterior coxæ white, black within and black spot on outside, their trochanters black, white at tips, their femora rufo-ferruginous, white at extreme base and apex and with a black annulus before each, femoral tooth very small, their tibiæ and tarsi black, extreme base of tibiæ, a broad median annulus and spurs white; abdomen pale rufo-ferruginous, basal half of first segment white, a spot on middle of first segment, the second and dorsal edge of remaining segments except apex, black; ovipositor two-thirds the length of abdomen. Length .50 inch.

One specimen from Comal Co. A very distinct species.

PHARSALIA, n. gen.

Same form as *Eiphosoma*, rather more slender and roughly sculptured as in *Trachynotus*; head transverse, not wider than thorax, buccate; antennæ short, not longer than head and thorax; thorax gibbous, subtruncate anteriorly; scutellum broad, flat, with a broad deep central groove; metathorax longer and more pointed at apex than in *Trachynotus*, with a deep central groove; legs as in *Eiphosoma*, except that the posterior femora are shorter and unarmed, their tibiæ and tarsi shorter and more robust; abdomen as in *Eiphosoma*, except that it is rather longer and more slender; wings short and very narrow, with the neuration as represented by the accompanying figure, the dotted lines of which indicate very indistinct nervures.

Pharsalia texana, n. sp.

♀.—Black, face with silvery pubescence; cheeks, pleura and metathorax entirely covered with a dense, appressed silvery pile; anterior orbits, all beneath antennæ, lower part of cheeks and scape beneath, whitish; vertex and occiput rugose; antennæ not longer than head and thorax; mesothorax coarsely rugose; scutellum deeply excavated centrally; metathorax coarsely reticulated, central groove deep and shining; wings hyaline; four anterior legs bright honey-yellow, their coxæ and trochanters, base and apex of tibiæ, and tarsi at tips, white; posterior coxæ black, their trochanters with basal half white and balance black, their femora black above, ferruginous beneath, their tibiæ ferruginous, white at base, below which is a narrow black annulus, their tarsi blackish; abdomen nearly three times longer than head and thorax together, black, apex of third segment, and the fourth and fifth entirely except dorsal ridge, ferruginous; ovipositor very short. Length .50 inch.

One specimen. (Belfrage.)

In the collection of the American Entomological Society there is another species belonging to this genus, from West Virginia, which I have named *P. virginiensis*. It is a ♂, having the eyes larger than in ♀ and face much narrower, especially beneath; the color is nearly altogether black, the cheeks, pleura and metathorax densely silvery; the anterior orbits, margin beneath eyes and mandibles whitish; antennæ entirely black; the scutellum broadly concave; anterior legs honey-yellow, with coxæ beneath, tibiæ, and tarsi except tips, white; intermediate legs fuscous, with annulus at base of tibiæ, and tarsi except tips, whitish; posterior legs black, with basal half of trochanters and annulus near base of tibiæ white; abdomen more slender than in *texana* and entirely black. Length .50 inch.

BRACONIDÆ.

Perilitus vulgaris.

Perilitus vulgaris, Cress. Can. Ent. iv, p. 83.

Three ♂ ♀ specimens. (Belfrage; Boll.)

Opius brunneiventris, n. sp.

♂.—Black, shining; clypeus, mandibles and scape beneath honey-yellow; antennæ as long as body, brown-black; metathorax roughly sculptured; tegulæ honey-yellow; wings faintly dusky, iridescent, stigma blackish, broad lanceolate; legs entirely pale honey-yellow; abdomen depressed, smooth and shining, pale brown, first segment black, lateral margins raised. Length .12 inch.

One specimen. (Coll. G. W. Belfrage.)

Eubadizon maculiventris, n. sp.

♂.—Pale honey-yellow, darker above; antennæ as long as body, dusky at tips; metathorax with a large square black central spot; tegulæ whitish; wings hyaline, beautifully iridescent, nervures and stigma dusky; tips of four posterior femora above, tips of their tibiæ, and a band near base (which is pale) and their tarsi except base of joints, fuscous; first and second abdominal segments above except lateral margins, black, middle of remaining segments fuscous or blackish. Length .20 inch.

One specimen from Comal Co.

Phylax melleus, n. sp.

♀.—Honey-yellow, thorax beneath, legs and abdomen beneath paler; antennæ much longer than body, dusky towards tips which are very slender and involute; mesothorax slightly trilobed, and with the pleura dark honey-yellow; metathorax slightly roughened above; wings hyaline, iridescent, nervures dusky, stigma very pale, second cubital cell small, quadrate; legs slender, posterior pair darker, the tarsi dusky; first abdominal segment larger than second, sides nearly parallel, sides of second segment narrowly yellowish, apex of abdomen compressed, truncate, ovipositor short. Length .25 inch.

Three specimens. (Belfrage.)

Macrocentrus nuperus, n. sp.

♀.—Pale honey-yellow, shining; eyes large, prominent, black; tips of mandibles and band across vertex, blackish; antennæ longer than body, very slender, the five or six basal joints blackish; mesothorax strongly trilobed, middle lobe blackish centrally, side lobes dusky; metathorax very finely rugulose; wings hyaline, beautifully iridescent, nervures dusky, stigma pale; abdomen long, slender, apex dusky, first segment slender, with lateral tubercles prominent; ovipositor as long as body, honey-yellow, sheaths pilose, fuscous. Length .30 inch.

Two specimens. (Belfrage.)

Macrocentrus delicatus, n. sp.

♂ ♀.—Slender, pale honey-yellow; spot enclosed by ocelli, and tips of mandibles blackish; eyes prominent, black; antennæ longer than body, very slender, curled at tips, base more or less dusky, incisures of joints fuscous;

mesothorax strongly trilobed; sometimes the scutellum, metathorax above and basal segments of abdomen above are more or less dusky; wings pale yellowish-hyaline, iridescent, nervures fuscous, stigma pale yellow; thorax paler beneath; legs slender, yellowish-white, paler at base, tips of tibiæ and of tarsi faintly dusky; abdomen longer than head and thorax, smooth, apex more or less dusky, lateral tubercles of first segment not prominent; ovipositor of ♀ generally much longer than body, honey-yellow, sheaths pilose, fuscous. Length .25 inch.

Three specimens. (Belfrage.) This is a very variable species and occurs in the Eastern, Middle and Western States and also in Mexico.

Helcon texanus, n. sp.

♀.—Black, shining, metathorax, most of pleura, posterior legs and abdomen ferruginous; antennæ longer than head and thorax, curled at tips; metathorax rugose; wings pale smoky hyaline, a broad transverse angular streak beneath base of stigma; posterior coxæ, trochanters and femora ferruginous, tips of tarsi rufo-testaceous, posterior femora unarmed; abdomen polished, except first segment which is finely and longitudinally roughened; ovipositor longer than body. Length .38 inch.

One specimen. (Coll. G. W. Belfrage.)

Ichneutes abdominalis, n. sp.

♀.—Black, shining, thinly clothed with a pale sericeous pile; antennæ stout, brown-black, sericeous; wings uniformly fuliginous, two or three pale spots beneath stigma, nervures and stigma black; legs stout, yellow-ferruginous, coxæ and trochanters black, tarsi fuscous at tips; abdomen yellow-ferruginous, strongly pale sericeous. Length .18 inch.

One specimen. (Coll. G. W. Belfrage.)

Toxoneuron seminigrum.

Tenthredoides seminiger, Cress. Proc. Ent. Soc. Phil. iv., p. 291.

One ♀ specimen. (Belfrage.)

Sigalphus texanus, n. sp.

♀.—Black, vertex and cheeks shining, face pubescent; palpi and four or five basal joints of antennæ honey-yellow; thorax subopaque, sides of mesothorax shining; metathorax with a central longitudinal carina, apex truncate, lateral angles subacute; tegulæ piceous; wings hyaline, apical half faintly dusky, stigma black; legs ferruginous, tips of four posterior tibiæ and their tarsi blackish; segments of abdomen completely coalite, longitudinally aciculated to near apex where the surface is granulated, apex deeply emarginate. Length .15—.17 inch.

Three specimens. (Belfrage.)

Chelonus texanus, n. sp.

♀.—Short, broad, robust, black, opaque, with a pale sericeous pile; face transversely striated; clypeus smooth; mandibles tinged with ferruginous; thorax rugose; scutellum and tegulæ shining; metathorax coarsely reticulated, truncate behind, with prominent acute lateral angles; wings hyaline, dusky on apical third, stigma blackish; legs honey-yellow, coxæ, trochanters and

base of posterior femora black; abdomen broad ovate, coarsely granulated, rounded at tip, base with two sharply defined carinæ converging posteriorly and a lateral honey-yellow spot; venter honey-yellow at base. Length .20 in.

Two specimens. (Belfrage.)

Chelonus electus, n. sp.

♂ ♀.—Black, opaque, densely and finely granulated, with a short, pale, glittering, sericeous pile, dense on the face of the ♂; clypeus shining, tips of mandibles yellowish; metathorax abrupt and excavated at tip, lateral angles prominent; tegulæ piceous; wings hyaline, dusky on apical half, stigma black; anterior femora except base, apex of intermediate pair, four anterior tibiæ and base of tarsi, posterior tibiæ except base and apex, and base of their tarsi, honey-yellow; abdomen with two whitish spots, sometimes confluent forming a broad band at base where the surface is more or less longitudinally rugose, and having a short longitudinal carina on each side, apex rounded. Length .17 inch.

Two specimens. (Coll. G. W. Belfrage.)

Chelonus connectens, n. sp.

♀.—Black, opaque, subsericeous; head densely punctured, clypeus shining, finely punctured, apical margin smooth and polished; mandibles yellowish, palpi dusky; scape ferruginous; thorax shining, coarsely punctured; scutellum sparsely punctured; metathorax rugose, deeply excavated posteriorly, lateral angles very prominent, subacute; pleura with large confluent punctures; tegulæ piceous; wings hyaline, apical half dusky, stigma blackish; legs, including coxæ, honey-yellow or ferruginous, posterior trochanters, tips of their tibiæ and their tarsi except base, fuscous, remainder of tibiæ and base of tarsi pale; abdomen sericeous, confluently punctured or somewhat coarsely granulated, base above with two large yellowish-white spots confluent anteriorly. Length .19 inch.

One specimen. (Coll. G. W. Belfrage.)

Chelonus cautus, n. sp.

♀.—Black, subsericeous, head and thorax somewhat shining, feebly punctured; tips of mandibles and palpi testaceous; scutellum polished; metathorax coarsely reticulate, truncate and excavate behind, lateral angles rather prominent, obtuse; tegulæ pale piceous; wings subhyaline, darker on apical half, stigma fuscous; legs black, all the trochanters, anterior femora except base, four anterior tibiæ, their tarsi except tips, posterior tibiæ except tips and base of their tarsi yellowish; abdomen finely and longitudinally sculptured, a large yellow spot, rounded posteriorly, occupies nearly the basal fourth of the segment; apex of abdomen rounded, with a deep transverse shining incision. Length .15 inch.

Two specimens. (Belfrage.)

Chelonus laticinctus, n. sp.

♀.—Elongate, black, somewhat shining, subsericeous; head and thorax above finely punctured; mandibles and scape beneath dull ferruginous; scutellum shining; lateral angles of metathorax not prominent; pleura coarsely punctured; wings uniformly pale fuliginous, iridescent, stigma black; legs ferruginous, coxæ, tips of posterior tibiæ and of the tarsi black; abdomen

elongate, narrower than usual, minutely and longitudinally sculptured, sericeous, a broad honey-yellow band occupying the basal third, apex rounded. Length .19 inch.

Two specimens. (Belfrage.)

Chelonus minimus, n. sp.

♀.—Black, opaque, finely sculptured, subsericeous; tips of mandibles and palpi reddish; clypeus shining; metathorax with two central carinæ enclosing a shining space, apex truncate, lateral angles not prominent; tegulæ piceous; wings hyaline, dusky at tips; legs black, tibiæ and tarsi pale testaceous; abdomen entirely black, densely and minutely sculptured, longitudinally so at base, apex rounded. Length .10 inch.

Two specimens. (Belfrage.)

Phanerotoma tibialis.

Sigalphus (*Triaspis*) *tibialis*, Hald. Proc. Acad. Nat. Sci. Phil. iv., p. 203.

One ♂ specimen. (Belfrage.)

Microdus thoracicus, n. sp.

♂ ♀.—Large, robust; head broad, black, clothed with a short yellowish sericeous pubescence, cheeks prominent, shining; face broad, roughened, depressed on each side of middle; clypeus broad, sparsely punctured, anterior margin and small space on disk polished; labrum yellow; middle of mandibles reddish; palpi pale yellow; antennæ not quite as long as head and thorax, honey-yellow, tips black; prothorax except lateral black margin, mesothorax entirely, scutellum except large black spot on summit, scutellar region, and tegulæ, dull honey-yellow or ferruginous; mesothoracic lines deeply impressed; pleura black, polished; metathorax rough, opaque black, clothed with a rather dense yellowish pubescence; wings yellow, the apex beyond radial and cubital cells fuscous, nervures and stigma yellow, arcolet minute, triangular; legs robust, yellow, more or less tinged with honey-yellow, coxæ, base of trochanters, anterior femora behind, intermediate pair except tips, and posterior pair except extreme tips, black; posterior tibiæ honey-yellow at tips; abdomen short, shining, pale yellow; apical half of first segment and apical margin of second and third segments, sometimes interrupted centrally, black; apical segments more or less ferruginous; second segment with a deep transversely impressed line before apex and another, less deep, near base; ovipositor of ♀ nearly as long as abdomen. Length .35—.40 inch.

Seven specimens. (Belfrage.)

Microdus texanus, n. sp.

♂.—Slender, black, shining, with a short pale sericeous pile; head small, subtriangular; mesothorax strongly trilobed; metathorax coarsely reticulated, flanks rugose; wings blackish, with an irregular hyaline streak through first cubital cell and beneath areolet, which is triangular—as usual; legs black, four anterior tarsi except terminal joint white; posterior coxæ and femora sanguineous, tibiæ and tarsi fuscous, varied with yellowish; abdomen short, narrow, entirely sanguineous, polished; first segment with lateral margin and disk carinate on basal half; second segment with a broad deep fovea on each side at base. Length .30 inch.

Two specimens. (Boll.)

Microdus nigriceps, n. sp.

♂.—Pale sanguineous; head, antennæ, spot behind postscutellum, pleura beneath, four anterior coxæ, all the trochanters, tips of four anterior tibiæ, posterior pair except middle, and all the tarsi, black; anterior margin of clypeus and tips of mandibles reddish; mesothorax trilobate; metathorax coarsely rugose; wings dark fuscous, a large irregular hyaline spot beneath stigma, continued beneath areolet, which is minute, triangular and petiolated; abdomen polished, first segment with a prominent lateral tubercle near base, second segment with two deep basal foveæ. Length .30 inch.

One specimen. (Coll. G. W. Belfrage.)

Microdus verticalis, n. sp.

♀.—Yellow-ferruginous, shining, head small, triangular; a large spot on vertex covering ocelli and continued on occiput, a spot beneath base of each antenna, apex of clypeus, most of mandibles and a spot on each side above base of same, black; antennæ as long as body, slender, entirely black; mesothorax strongly trilobed; metathorax rounded, rugose; wings dark fuscous, with an irregular hyaline streak beneath stigma, areolet minute, petiolated; tips of posterior tibiæ and four posterior tarsi fuscous; abdomen as in *nigriceps*; ovipositor as long as abdomen. Length .35 inch.

One specimen. (Coll. G. W. Belfrage.) This may be the ♀ of *nigriceps*.

Microdus pygmæus, n. sp.

♀.—Small, black, shining; head, mesothorax, pleura and apex of abdomen polished; metathorax with two approximate discal carinæ; wings hyaline, faintly dusky, nervures and stigma fuscous, areolet minute, petiolated; legs honey-yellow, coxæ, posterior trochanters, tips of their tibiæ and all the tarsi blackish; posterior tibiæ pale, with a dusky spot before base; abdomen with two basal segments subopaque, densely and minutely sculptured, base of second segment with two deep foveæ and a central transverse, rather deeply impressed, subarcuate line; ovipositor longer than abdomen. Length .15 inch.

♂.—More shining than ♀; legs paler, all the coxæ, trochanters and base of femora black; abdomen entirely polished.

Two specimens. (Belfrage.)

Ischius læviventris, n. sp.

♂.—Slender, black, shining; head subrotund; mandibles and palpi brown; antennæ nearly as long as body; wings hyaline, costal nerve black, nervures and stigma pale; legs pale honey-yellow, coxæ and most of trochanters black; base of anterior femora, tips of posterior pair, tips of their tibiæ and all the tarsi dusky; abdomen piceous-black, polished; venter pale. Length .15 inch.

One specimen. (Belfrage.) A specimen from Dacota has the abdomen, except first segment, pale brown.

Agathis exoratus, n. sp.

♂.—Yellow-ferruginous, smooth, shining; head more or less varied with black; mandibles, palpi, antennæ entirely, collar above, tegulæ, scutellar region, postscutellum, metathorax except lateral spot, pleura beneath, four anterior coxæ, all the trochanters, extreme tips of posterior femora, and their

tibiæ and tarsi, black; sometimes the posterior tibiæ has a median pale annulus; lobes of mesothorax each with a shallow longitudinal groove; metathorax coarsely reticulated; wings dark fuscous, areolet quadrangular; abdomen smooth and polished. Length .30 inch.

Two specimens. (Belfrage.)

Agathis vulgaris.

Agathis vulgaris, Cress. Proc. Ent. Soc. Phil. iv., p. 295.

Two ♀ specimens. (Belfrage.)

Agathis meabilis, n. sp.

♂ ♀.—Differs from *vulgaris* principally by the four anterior legs being mostly black; the color of the head varies from almost entirely yellow-ferruginous to entirely black; the coxæ also vary in the same way; the posterior tibiæ is entirely black. Length .25—.30 inch.

Five specimens. (Belfrage; Boll.)

Agathis rubripes. n. sp.

♀.—Black, shining; face not as much prolonged as usual; metathorax opaque, rugose above, with a smoother rounded space on each side of middle; wings uniformly dark fuliginous, areolet small, quadrangular, stigma blackish; legs honey-yellow, coxæ, trochanters, apex of posterior tibiæ, and their tarsi except base of first joint, black; first abdominal segment opaque, rugulose, the second more or less tinged with reddish, depressed centrally, remaining segments polished; ovipositor rather longer than abdomen. Length .18 inch.

Three specimens. (Belfrage.)

Microgaster croceipes, n. sp.

♂ ♀.—Deep black, shining, tips of mandibles and palpi dull yellowish; metathorax coarsely reticulated, with a well-defined central and lateral carina; wings pale fuliginous, subhyaline at tip, stigma large, black, areolet complete, large; legs, except coxæ, orange-yellow; abdomen polished. Length .20 inch.

Six specimens. (Belfrage.)

Microgaster maculipennis, n. sp.

♂ ♀.—Black; clypeus, mandibles, palpi, scape beneath and tegulæ honey-yellow; metathorax as in *croceipes;* wings yellow, apex pale fuliginous, a fuliginous cloud beneath stigma and another covering discoidal cell, stigma yellow, apex black, areolet minute, complete; legs and abdomen honey-yellow, tips of posterior tibiæ and tarsi entirely, fuscous; abdomen polished, sides of first segment pale yellow, Length .23 inch.

Four specimens. (Belfrage.) A very handsome species.

Bracon epicus, n. sp.

♀.—Black, smooth and polished, sparsely clothed with a whitish pubescence; head very full behind the eyes; face smooth, even; posterior orbits and mandibles more or less tinged with reddish; scape dilated at apex, with the margin somewhat reflexed anteriorly; thorax impunctured; wings blackish, a hyaline spot beneath insertion of first and second cubital cells, the latter quadrangular, twice longer than broad, nervures and stigma black; legs entirely black, sericeous with pale hairs; abdomen broad ovate, shining, pale

sanguineous, incisures deeply impressed; first segment yellow medially, disc prominent and convex, a broad shallow depression on each side, with a longitudinal carina between the median prominence and the lateral margin; second segment very large, with a small triangular prominence on basal middle, on each side of which is a large, broad, deeply impressed fovea, and a transverse, deeply impressed line across the middle of the segment, broad on the disc and furcate laterally; ovipositor longer than abdomen. Length .40 inch.

Two specimens. (Belfrage.)

Bracon rugiceps, n. sp.

♀.—Differs from *epicus* as follows:—Head smaller, less full behind the eyes; face opaque and coarsely rugose; scape simple; a honey-yellow spot beneath each eye; the disc of median prominence on first abdominal segment with two elongate foveæ; the second segment has a flat rhomboidal prominence on basal middle, the tip of which is carinate and prolonged posteriorly nearly to the middle of the segment, with a deep fovea on each side and a deep oblique line on each side of basal middle, ending in a deep fovea near lateral margin; the transverse median line is furcate as in *epicus*. Length .40 inch.

One specimen. (Coll. G. W. Belfrage.)

Bracon simplex, n. sp.

♀.—Black, smooth and polished; head very full behind the eyes; face with a median tubercle below antennæ and two deep foveæ above clypeus, and between them two longitudinal depressions, the two tubercles at base of antennæ very prominent and tinged with reddish, and the lateral carinæ between base of antennæ and eyes also very prominent; excavations of vertex very deep and separated by a sharp carina; upper anterior orbits and middle of mandibles reddish; scape elongate-quadrate, both base and apex reflexed; disc of metathorax tinged with reddish; wings as in *epicus*, except that they are paler at tip, and the second cubital cell rather longer, with its basal nervure more oblique; legs black, sericeous with pale hairs, apex of trochanters beneath sanguineous; abdomen oblong-ovate, much narrower and more depressed than that of *epicus*, shining, pale sanguineous; first segment with a deep longitudinal groove near lateral margin, the disc subconvex, orange-yellow, margined and carinate laterally; second segment with a large cuneiform prominence on basal middle, the tip accuminate and prolonged posteriorly nearly to the transverse groove, with a profound depression on each side, median transverse line very deep, subcrenulate and simple—not being forked laterally, on each side near base a broad irregular shallow depression, and a small lateral fovea behind the transverse groove; remaining segments smooth and even, not incised, the terminal segment with a broad shallow depression; ovipositor as long as body. Length .45 inch.

One specimen from Comal Co. Very distinct from the two preceding species by the sculpture of the head and abdomen.

Bracon orbitalis, n. sp.

♂ ♀.—Black, smooth and shining; head not unusually full behind the eyes; face smooth, with an arcuated depressed line above orifice which is completely circular, vertex scarcely excavated; middle of mandibles reddish; orbits more or less reddish-yellow, dilated into a spot on each side of antennæ

and generally interrupted at summit, sometimes entirely obsolete; scape simple, accuminate at base, the apex not reflexed; disc of metathorax more or less reddish-yellow; wings as in *simplex;* legs entirely black, with pale sericeous hairs; abdomen ovate, polished, sanguineous; first segment much as in *epicus*, the disc with two short oblique depressed lines, or foveæ, near apex, diverging towards base; second segment with a flat triangular space on basal middle, bounded laterally by a deep subcrenulated depression, on each basal corner a more or less deep oblique fovea, median transverse line deep, sinuate, simple, not crenulated, a small shallow fovea on each side near apical corner; ovipositor of ♀ longer than abdomen. Length .20—.40 inch.

Twelve specimens. (Belfrage.) Varies much in size. Distinct from *simplex* by the smaller head, by the scape being simple, and by the different sculpture of the abdomen.

Bracon radiatus, n. sp.

♀.—Narrow, elongate, black, shining, with long, sparse, whitish hairs; head very full behind the eyes; face punctured, with four small deep punctures above orifice, the anterior two approximate; scape simple, flagellum long and very slender; sutures of thorax crenulated; a deep transverse depression at base of scutellum; metathorax with large confluent punctures, coarse at apex, a smooth polished space on each side of basal middle; tegulæ piceous; wings blackish, with a small subhyaline spot on lower basal corner of second cubital cell, which is shorter than usual, with its basal nervure very oblique; legs black, with long pale hairs, apex of trochanters tinged with reddish; abdomen long, narrow, without transverse depressions; first segment subquadrate, about one-fourth the length of entire abdomen, longitudinally rugose, the intervals confluently punctured, a small polished space on apical middle; remainder of abdomen smooth and polished except basal fourth of second segment which is covered with radiating striæ; ovipositor as long as abdomen. Length .35 inch.

Two specimens. (Belfrage.)

Bracon faustus, n. sp.

♀.—Black, shining, clothed with white pubescence; head small; mandibles tinged with reddish; a yellowish spot beneath each eye; sides of prothorax, except lower margin, sanguineous; mesothorax sanguineous, with a more or less broad black stripe on each lobe, sometimes obsolete on middle lobe; metathorax smooth, more or less reddish centrally; wings as in *epicus;* legs entirely black, with pale sericeous hairs; abdomen usually broad ovate, opaque, sanguineous, coarsely punctured, with broad, deep, crenulated incisures; first segment with the disc ovate and prominent, on each side a broad transversely striated excavation bounded laterally by a prominent carina; second segment carinate at base, a small smooth space on basal middle and a deep fovea on each basal corner, behind the middle a broad, very deeply impressed, longitudinally striated, transverse line, interrupted or divided by a smooth prominence; remaining segments convex, sometimes shining on disc, deeply incised at base; ovipositor rather more than half the length of abdomen. Length .32 inch.

Five specimens. (Belfrage.)

Bracon disjunctus, n. sp.

♀.—Differs from *radiatus* as follows:—Face with only two foveæ; prothorax coarsely rugose; metathorax with a rather prominent reddish tubercle on each side before apex, polished spaces at base larger; posterior coxæ, trochanters and femora except extreme tips, pale sanguineous; abdomen broader, the radiating striæ at base of second segment not so distinct and well defined. Length .35 inch.

One specimen. (Coll. G. W. Belfrage.)

Bracon mavoritus, n. sp.

♀.—Sanguineous, shining; head subtransverse, not prominent behind eyes, black; orbits more or less interrupted, and spot beneath eyes, pale yellowish; thorax smooth, impunctured; metathorax with a central longitudinal groove; wings blackish, paler at apex, base of radial cell darker, an oblique hyaline line across first cubital cell, ending in a spot beneath it, second cubital cell long; legs, including coxæ, entirely black; abdomen broad ovate, covered with dense longitudinal striæ; first segment much as in *faustus;* second segment with prominent basal corners and a small subrhomboidal space on basal middle, prolonged posteriorly by a sharp carina to margin of median transverse line which is deep and broadly furcate laterally; base of third and fourth segments deeply incised, their apical margin smooth and polished; ovipositors shorter than abdomen. Length .32 inch.

Two specimens. (Belfrage.)

Bracon Belfragei, n. sp.

♀.—Long, narrow, yellowish sanguineous, shining; head transversely subquadrate, cheeks rather prominent, black, orbits, upper margin of mouth, posterior margin of occiput and middle of mandibles yellowish-red; palpi fringed with long white pubescence; antennæ rather slender, fuscous; thorax smooth and polished, immaculate except a small black spot on each side of pleura beneath; metathorax with a slightly raised central longitudinal line; wings as in *mavoritus;* legs black, coxæ, posterior femora beneath and within, and tibial spurs, pale sanguineous; abdomen long, narrow, first and basal half of second segment coarsly rugose, apical half of second and third segment except apical margins, with dense longitudinal striæ; apical segments smooth and polished; first segment with a large central elevation (the apex of which is polished,) bounded laterally by a deep groove and a blackish carina; second segment long, divided medially by a deep transverse crenulated groove, the basal corners of each half prominent but not striated, a small subrhomboidal space on basal middle of anterior half, prolonged posteriorly by a fine carina which ends in a smooth space an anterior margin of the median transverse groove; ovipositor longer than abdomen. Length .40 inch.

One specimen. (Coll. G. W. Belfrage.)

Bracon novitus, n. sp.

♂.—Pale sanguineous; head black, anterior orbits, face except central black spot, mouth, mandibles except tips, and palpi except basal joint, yellowish-white; antennæ as long as body, slender, entirely black; a large black spot on each side of collar; thorax immaculate; wings pale fuliginous, basal half and base of radial cell darker; legs black, anterior pair, and most of their

tibiæ, pale honey-yellow; abdomen sculptured almost precisely as that of *Belfragei*, extreme apex blackish. Length .23 inch.

One specimen. (Coll. G. W. Belfrage.)

Bracon texanus, n. sp.

♀.—Long, narrow, uniformly yellowish-ferruginous, tips of mandibles black; flagellum dusky, blackish at tips; metathorax rugulose centrally; wings short and narrow, pale fusco-hyaline, a hyaline streak in first cubital cell and a spot beneath it, stigma subhyaline; tips of tarsal joints dusky; abdomen long, narrow; first segment rugose, with a large central prominence nearly as wide as the segment, apical corners depressed; second segment long, divided centrally by a very deep transverse finely crenulated groove, anterior to which the middle is occupied by a large, depressed, subrhomboidal, rugose space with a central longitudinal carina, sides obliquely depressed and obliquely aciculated, on each side of basal margin a small triangular shining space; apical half of second segment obliquely aciculated, smooth and polished on apical margin and with a shining prominence on each basal corner: third segment with fine oblique striæ; apical segments smooth and polished; ovipositor longer than body. Length .33 inch.

Two specimens. (Belfrage.)

Bracon nuperus, n. sp.

♀.—Small, black, shining; head transverse, subbuccate; space beneath eyes, mouth and mandibles honey-yellow; thorax smooth and shining, upper margin of prothorax more or less pale; wings fuliginous, apical half subhyaline, the usual hyaline streak in first cubital cell and spot beneath; legs honey-yellow, coxæ, trochanters, four anterior femora above, apex of four posterior tibiæ and the tarsi, black or blackish; abdomen broad ovate, smooth and shining, the central transverse groove on second segment deep and sinuate, sometimes the promiuent disc of first segment and a spot on basal middle of second segment are black; ovipositor as long as body. Length .15 inch.

Three specimens. (Belfrage.)

Bracon minimus. n. sp.

♂ ♀.—Minute, black, shining; mouth honey-yellow; wings pale fuscous, apical half subhyaline; legs blackish, tips of four anterior femora and base of posterior tibiæ dull yellowish; abdomen rather broad ovate, shining, honey-yellow, disc of first segment, a spot on basal middle of the second and a large mark, much reduced in ♂, covering apical half of second segment, and the remaining segments except lateral margin, black; ovipositor of ♀ longer than body. Length .10 inch.

Two specimens. (Coll. G. W. Belfrage.) This is the smallest species of this genus known to me.

Bracon xanthostigma, Cress. Proc. Ent. Soc. Phil. iv., p. 303.

♀.—Yellowish-ferruginous or honey-yellow, head much paler, shining, abdomen opaque; a dusky spot within ocelli; antennæ dusky; pleura beneath, sometimes the disc of metathorax and of first abdominal segment, black; wings pale fusco-hyaline, paler on apical half, stigma larger, pale yellow; tips of posterior tibiæ and the tarsi more or less obfuscated; abdomen broad ovate,

opaque, minutely sculptured, central transverse line on second segment deep and subsinuate, basal middle sometimes blackish; ovipositor as long as body. Length .10—.16 inch.

Six specimens. (Belfrage.) Smaller than the specimens collected in Colorado, with the pleura entirely black beneath.

Rogas texanus.

Alciodes texanus, Cress. Trans. Am. Ent. Soc. iii., p. 378.

One specimen from Comal Co.

Rogas molestus, n. sp.

♀.—Pale ferruginous, finely punctured, with a short fine pale pubescence; head, palpi, antennæ, metathorax except base and apex, most of pleura, and the legs except coxæ, black; metathorax finely reticulated, with a central and a lateral longitudinal carina; wings hyaline, nervures black; abdomen longitudinally rugose, with a central carina extending from base of first segment nearly to the middle of the third; basal half of third segment longitudinally aciculated, apical half and remaining segments smooth and polished. Length .25 inch.

One specimen. (Coll. G. W. Belfrage.) Allied to *parasiticus*, Norton, but differs by the black legs and unicolorous abdomen.

Rogas graphicus, n. sp.

♂.—Uniformly honey-yellow, clothed with a short whitish pubescence; spot enclosed by ocelli, tips of mandibles, palpi, antennæ entirely, four anterior femora except base, tips of posterior pair and all the tibiæ and tarsi black; metathorax rounded, feebly sculptured, with a sharp central longitudinal carina; wings fuliginous, nervures and stigma black; abdomen opaque, subsericeous, coarsely longitudinally aciculated, the first three segments with a well-defined central longitudinal carina, becoming obsolete before reaching apex of third segment, apical segments almost smooth, shining. Length .35 in.

Two specimens. (Belfrage.)

Rogas mandibularis, n. sp.

♂.—Uniformly honey-yellow, clothed with a short whitish pubescence; head large, transversely subquadrate, buccate; mandibles large, protruding, the oval orifice very large; face transversely striated, prominent medially; spot enclosed by ocelli, tips of mandibles, palpi, antennæ entirely and tips of tarsal joints black or blackish; thorax as in *graphicus;* wings subhyaline, slightly dusky, stigma black; legs rather robust, especially posterior tarsi which are shorter than usual, all the tarsi more or less obfuscated; abdomen as in *graphicus*, except that it is much more finely sculptured, apex of third and the remaining segments smooth and polished. Length .35 inch.

One specimen. (Coll. G. W. Belfrage.)

Rogas atricornis, n. sp.

♀.—Uniformly honey-yellow, clothed with a very short whitish pubescence; tips of mandibles and antennæ except scape, black; thorax and abdomen as in *mandibularis;* wings hyaline, stigma fuscous, very pale at base; tips of tarsi dusky. Length .30—.33 inch.

Four specimens. (Belfrage.) Differs from *graphicus* by the yellow scape, hyaline wings, unicolorous legs, and more finely aciculated abdomen; and from *mandibularis* by the much smaller head and mandibles and paler wings.

Rogas delicatus, n. sp.

♂.—Uniform pale yellowish-testaceous, clothed with a whitish pubescence; head broad, mandibles rather large, black at tips; antennæ as long as head and thorax, apical half pale fuscous; mesothorax even, lines scarcely impressed; metathorax rounded above, feebly sculptured; wings hyaline, iridescent, nervures pale luteous, apical half of stigma blackish, second cubital cell short; legs rather short, subrobust, terminal joint of tarsi black; first and second abdominal segments very minutely and longitudinally aciculated, with a distinct central carina, apex of second and the remaining segments smooth and polished. Length .20 inch.

Two specimens. (Belfrage.) A very delicately colored species.

Rogas pilosus, n. sp.

♀.—Robust, clothed with a short, rather dense, erect, white pubescence; head and thorax ferruginous; antennæ except scape beneath, black; metathorax short, broad, rather abrupt behind, rugulose, base above blackish; wings pale fuliginous, subhyaline at tips, stigma black, yellow at base, second cubital cell shorter than usual, quadrate; legs honey-yellow, tips of posterior femora and of their tibiæ, and the tarsi, more or less blackish; abdomen broad, convex, honey-yellow, shaped much as in *Rhitigaster*, with the segments not coalite, rough with confluent punctures, three basal segments about equal in length, fourth segment broadly rounded at apex; venter deeply vaulted as in *Rhitigaster*. Length .17 inch.

Two specimens. (Belfrage.) A remarkable species, having all the characters of a *Rogas*, except the abdomen which is very similar in shape to that of *Rhitigaster*.

Rogas intermedius.

Aleiodes intermedius, Cress. Trans. Am. Ent. Soc. iii., p. 380.

Several specimens. (Belfrage.) Varies much in color.

Exothecus atriventris, n. sp.

♀.—Opaque; head, pro- and mesothorax, tegulæ, scutellum and legs ferruginous; pleura, metathorax and abdomen black; head very full behind the eyes, cheeks smooth and shining, occiput finely and transversely aciculated, face rugulose; antennæ ferruginous, dusky at tips, rather longer than head and thorax; mesothorax with crenulated sutures, median lobe gibbous, truncated anteriorly; scutellum flat, polished; pleura dull rufous, sides longitudinally rugulose, smooth and polished beneath, with a deep central groove; metathorax densely rugose; wings narrow, subhyaline varied with pale fuliginous, stigma black, pale at base; femora robust, trochanters and tarsi paler; abdomen as long as head and thorax, thickened and polished at tip, first and basal half of second segment opaque, covered with dense longitudinal striæ, each with two distant longitudinal carinæ at base, those on first segment con-

tinued nearly to apex, apical half of second segment smooth and polished; ovipositor longer than body, tips of sheaths thickened. Length .25 inch.

Two specimens. (Belfrage.)

Exothecus rugulosus, n. sp.

♀.—Opaque; fuscous, more or less varied with ferruginous, sparsely clothed with white pubescence; head not full behind the eyes, ferruginous, vertex and occiput dusky, the latter transversely aciculated; antennæ dusky, pale at base; thorax blackish, finely rugulose; prothorax ferruginous; pleura beneath smooth and shining, with a central well-impressed line; tegulæ honey-yellow; wings hyaline, stigma black; legs honey-yellow, the posterior pair more or less tinged with pale fuscous; abdomen fusco-ferruginous, varied with black; first and second segments densely, finely, longitudinally rugose, the first with two longitudinal carinæ at base, the second with a transverse space behind middle, enclosed by a deeply impressed line, extreme apex of segment smooth and polished; ovipositor as long as body. Length .24 inch.

One specimen. (Coll. G. W. Belfrage.)

Hormius ? aciculatus, n. sp.

♀.—Fuscous, more or less tinged with dull ferruginous; head ferruginous, with white pubescence, not full behind eyes, vertex depressed; antennæ as long as body, pale at base, dusky at tips; thorax fusco-ferruginous; pleura, metathorax and abdomen covered with dense longitudinal striæ; mesothoracic lobes smooth, the sutures rugose; tegulæ honey-yellow; wings narrow, subhyaline, apical half varied with pale fuliginous; a streak at tip of stigma, an oblique streak in first cubital cell, a spot at base of second cubital cell and a short transverse line at its apex, hyaline; stigma black, whitish at base and apex; legs ferruginous, with sparse erect white hairs; abdomen blackish-fuscous, tinged with reddish at base, sparsely clothed with short erect whitish hairs; sutures deeply incised, the second segment with a deep transverse line a little behind the middle; ovipositor about half the length of abdomen. Length .20 inch.

One specimen. (Coll. G. W. Belfrage.)

Megischus texanus, n. sp.

♀.—Opaque, dull ferruginous; head tinged with yellow; face rather coarsely reticulated; vertex with two transverse carinæ, in front of which are three distant transverse tubercles arranged in a triangle, all tipped with fuscous; occiput finely transversely wrinkled; cheeks smooth and polished; tips of mandibles black; antennæ very slender, dusky at tips; prothorax smooth; mesothorax coarsely rugose; metathorax rugose centrally and at tip; (wings too much damaged to be described;) legs shining, posterior femora, which are short and much swollen, with two large distant acute teeth beneath, the anterior one more robust; posterior tibiæ clavate, deeply pinched and yellowish above middle; first abdominal segment linear, perfectly straight, as long as all the remaining segments combined, the three following segments fuscous at tip, short, subequal in length; ovipositor as long as body, apical half of sheaths black, with a broad white annulus before apex. Length .40 inch.

One specimen from Comal Co.

Dacnusa lævíceps, n. sp.

♀.—Black, smooth and shining, with a short pale pubescence, dense on metathorax and first abdominal segment; mandibles red; palpi, scape and tegulæ pale honey-yellow; antennæ longer than body, flagellum fuscous; wings subhyaline, iridescent, stigma long, fuscous, radial nerve thickened and black, radial cell very large; legs pale honey-yellow, coxæ paler, tibiæ darker, posterior tarsi obfuscated; abdomen dull honey-yellow, smooth and shining, first segment black, rugulose; ovipositor as long as abdomen. Length .18 inch.

One specimen. (Coll. G. W. Belfrage.)

Dacnusa minima, n. sp.

♁.—Black, smooth and shining; mandibles, palpi, scape and legs entirely pale yellowish; antennæ as long as body, black; metathorax with dense pale pubescence; wings hyaline, iridescent, radial cell very long; abdomen sometimes tinged with brownish, shining, first segment narrow, longitudinally rugulose. Length .10 inch.

Three specimens. (Belfrage.)

CHALCIDIDÆ.

Leucospis texana.

Leucospis texana, Cress. Trans. Am. Ent. Soc. iv., p. 31, ♁.

Two specimens. (Belfrage.) Differs greatly in form from *affinis*, Say, the abdomen being much shorter, broader at apex and much narrowed to base; the posterior femora much more swollen, being almost circular and having only four distinct teeth, three of which are very large, long and scarcely dilated at base.

Leucospis affinis.

Leucospis affinis, Say, Long's 2d Exped. ii., p. 327. Cress. Trans. Am. Ent. Soc. iv., p. 32.

Five ♁ ♀ specimens. (Belfrage.)

Smicra rufofemorata.

Smicra rufofemorata, Cress. Trans. Am. Ent. Soc. iv., p. 39.

Two ♁ specimens. (Belfrage.)

Smicra torvina.

Smicra torvina, Cress. Trans. Am. Ent. Soc. iv., p. 40.

Two ♀ specimens. (Belfrage.)

Smicra delira.

Smicra delira, Cress. Trans. Am. Ent. Soc. iv., p. 41.

One ♁ specimen. (Coll. G. W. Belfrage.)

Smicra subobsoleta.

Smicra subobsoleta, Cress. Trans. Am. Ent. Soc. iv., p. 42.

One ♁ specimen. (Coll. G. W. Belfrage.)

Smicra sanguiniventris.

Smicra sanguiniventris, Cress. Trans. Am. Ent. Soc., iv., p. 43.

One ♀ specimen. (Coll. G. W. Belfrage.)

Smicra bioculata.

Smicra bioculata, Cress. Trans. Am. Ent. Soc. iv., p. 43.

Three ♂ specimens. (Belfrage.)

Smicra barbara.

Smicra barbara, Cress. Trans. Am. Ent. Soc. iv., p. 47.

Three ♂ specimens. (Belfrage.)

Smicra ignea.

Smicra ignea, Cress. Proc. Ent. Soc. Phil. iv., p. 92.

One ♀ specimen. (Belfrage.)

Smicra dorsata.

Smicra dorsata, Cress. Trans. Am. Ent. Soc. iv., p. 49.

One ♀ specimen. (Belfrage.)

Smicra mirabilis.

Smicra mirabilis, Cress. Trans. Am. Ent. Soc. iv., p. 53.

Two ♂ specimens. (Belfrage.)

Smicra delicata.

Smicra delicata, Cress. Trans. Am. Ent. Soc. iv., p. 54.

Two ♀ specimens. (Belfrage.)

Chalcis ovata.

Chalcis ovata, Say, Long's 2d Exped. ii., p. 326. Cress. Trans. Am. Ent. Soc. iv., p. 59.

Four specimens. (Belfrage.)

Chalcis tegularis.

Chalcis tegularis, Cress. Trans. Am. Ent. Soc. iv., p. 60.

Two ♀ specimens. (Belfrage.)

Chalcis pedalis.

Chalcis pedalis, Cress. Trans. Am. Ent. Soc. iv., p. 60.

One ♀ specimen. (Coll. G. W. Belfrage.)

Phasgonophora sulcata.

Phasgonophora sulcata, Westw. Griff. Cuv. Reg. Anim. xv., p. 432; pl. 77. fig. 2.

One ♀ specimen. (Boll.)

Antigaster mirabilis.

Antigaster mirabilis, Walsh, Am. Ent. vol. ii.

One specimen. (Belfrage.)

PROCTOTRUPIDÆ.

Dryinus atriventris, n. sp.

♀.—Ferruginous, with pale glittering pubescence; head much broader than thorax; face, mandibles and base of scape beneath pale yellowish; tips of antennæ blackish; pleura with dense silvery pubescence; metathorax rugulose, posterior face depressed and transversely aciculated; wings hyaline, with a dusky band beneath stigma; posterior tibiæ blackish at tips, their tarsi pale; abdomen black, smooth and polished. Length .18 inch.

One specimen. (Coll. G. W. Belfrage.)

Gonatopus? alatus, n. sp.

♀.—Pale ferruginous, head shining, much broader than thorax, transversely compressed; front flat; eyes large, prominent, ovate; clypeus transverse, subconvex, bituberculate at tips; occiput concave; apical margin of clypeus, mandibles and scape beneath, whitish; antennæ slender, as long as head and thorax, 10-jointed, first joint short and robust, second small, scarcely half the length of first, third very long and slender, more than twice the length of first and second together, black, scape and two or three apical joints yellowish; prothorax elongate, as long as metathorax, convex, subtruncate anteriorly, narrowed and somewhat constricted posteriorly; mesothorax short, convex, fusco-ferruginous; metathorax elongate, rounded behind, longitudinally rugose at base above; wings narrow, scarcely reaching tips of posterior femora, fuscous, with a large rounded hyaline spot beneath base of stigma nearly as broad as the wing; legs rather paler than body, anterior pair very long, coxæ and trochanters as long as femora which are longer than tibiæ, tarsi chelate; four posterior legs much shorter than anterior pair, all the femora much thickened toward base; abdomen elongate, smooth and shining. Length .23 inch.

Two specimens. (Belfrage.) I have with doubt referred this remarkable insect to the genus *Gonatopus*, from which it differs by the more elongate slender form and by having wings.

Epyris læviventris, n. sp.

♂.—Black, immaculate, shining, clothed with a short glittering pubescence; head large, subquadrate, with dense coarse punctures; clypeus and mandibles faintly tinged with rufous; antennæ sericeous with pale pile; prothorax rugous; mesothorax polished, with sparse deep punctures; scutellum polished; metathorax subquadrate, abrupt laterally and abruptly truncate at tip, minutely transversely rugulose; pleura coarsly punctured; tegulæ piceous; wings tinged with fuscous; legs clothed with glittering pubescence, tarsi fuscous; abdomen elongate ovate, smooth and polished, impunctured, apex clothed with whitish pubescence. Length .30 inch.

Two specimens. (Belfrage.)

Epyris analis, n. sp.

♀.—Head and thorax dark metallic green, shining, sparsely clothed with pale pubescence; head subquadrate, flattened, rather closely and finely punctured; mandibles dark ferruginous, palpi whitish; antennæ short, robust, ferruginous; pro- and mesothorax sparsely and finely punctured; metathorax

black, quadrate, abrupt laterally and abruptly truncate at tip, above minutely and transversely aciculated, the disc with four or five approximate longitudinal carinæ, posterior face transversely aciculated, the sides longitudinally so; tegulæ ferruginous; wings tinged with yellowish-fuscous; legs short, robust, pale ferruginous, anterior coxæ black, all the femora incrassate; abdomen elongate ovate, smooth and polished, black, immaculate, apex ferruginous. Length .26 inch.

One specimen. (Coll. G. W. Belfrage.) A very conspicuous species, resembling *rufipes* in general form, but much larger and differently colored.

Epyris rufipes.

Bethylus rufipes, Say. Long's 2d Exped. ii., p. 329.

Two specimens. (Belfrage.)

DORYLIDÆ.

Labidus Sayi.

Labidus Sayi, Hald. Stansb. Salt Lake Exped. Append. p. 367, pl. 9, fig. 1—3.

Three ♂ specimens. (Belfrage; Heiligbrodt.)

Labidus mexicanus.

Labidus mexicanus, Smith. Brit. Mus. Cat. vii. p. 7.

Eight ♂ specimens. (Belfrage.)

Labidus Harrisii.

Labidus harrisii, Hald. Stansb. Salt Lake Exped. Append. p. 367, pl. 9, fig. 4.

Eleven ♂ specimens. (Belfrage.)

Labidus nigrescens, n. sp.

♂.—Black, clothed with a short appressed yellowish silky pubescence, long on vertex and face; eyes smaller than usual, prominent; ocelli approximate, a broad space between them and the eyes; before anterior ocellus two prominent longitudinal ridges; mandibles robust, reddish at tips; antennæ as long as head and thorax, dark ferruginous; thorax above gibbous anteriorly and posteriorly, rather closely and finely punctured; mesothorax with a central longitudinal ridge extending from disc to anterior margin; wings uniformly pale fuliginous, stigma tolerably large and with the nervures black, marginal cell elongate triangular, pointed at apex, second submarginal cell irregularly elongate quadrangular, narrower at apex, receiving the recurrent nervure about one-third from base; legs slender, rufo-piceous, knees and tarsi paler, tip of posterior tarsi not quite reaching to apex of abdomen; abdomen strongly sericeous, densely and minutely punctured, apical margin of the segments slightly constricted and rufo-piceous, the peduncle very transverse, base broadly not deeply concave with sides rounded, apex truncate, pubescent, angles subobtuse, lateral margin not raised, apical segment rounded, not compressed, except at the extreme apex which is acute and ferruginous, apical ventral segment ferruginous, produced at tip into a bilobate, bicarinate, scale-like process, the tip of each lobe acute and somewhat recurved. Length .45 inch.

One specimen. (Coll. G. W. Belfrage.)

Labidus minor, n. sp.

♂.—Rufo-testaceous, covered with a very short appressed yellowish silky pile; head black, face and mandibles ferruginous; eyes large and prominent; ocelli prominent, glassy, each posterior ocellus much nearer to the eye than to each other; mandibles long, slender, curved, acute at tips; two short longitudinal obtuse ridges above insertion of antennæ; antennæ not as long as head and thorax, rufo-testaceous, subcompressed at tips, scape robust; thorax strongly gibbous in front, much less so behind, closely and finely punctured, more or less tinged with brown above; mesothorax with a well-impressed central longitudinal line on anterior half and a finely impressed line on each side over the tegulæ; wings hyaline, iridescent, stigma conspicuous, fuscous, nervures hyaline, marginal cell elongate triangular, pointed at tip, second submarginal cell long and narrow, base and apex rounded, receiving the recurrent nervure a little before the middle; legs slender, shorter than usual; abdomen subcompressed, sericeous, peduncle transversely quadrangular and subconvex, base declivous and slightly concave, sides rounded, apex truncate, the angles subacute, sides scarcely raised; apical ventral segment furnished with two stout acute recurved teeth, between which is a minute acute tooth, sometimes indistinct. Length .35 inch.

Nine specimens. (Belfrage.) Smaller than *Harrisii* which it closely resembles, but the pubescence on the former species is much longer and coarser, the antennæ longer, the wings darker, etc.

Labidus Melshæmeri.

Labius Melshdæmeri, Hald. Stansb. Salt Lake Exped. Append. p. 368, pl. 9, fig. 7.

Three ♂ specimens. (Belfrage.)

MUTILLIDÆ.

Mutilla Grotei.

Mutilla Grotei, Blake, Trans. Am. Ent. Soc. iii. p. 228.

Four ♂ specimens. (Belfrage; Boll.)

Mutilla Promethea.

Mutilla Promethea, Blake, Trans. Am. Ent. Soc. iii., p. 229.

Three ♂ specimens. (Belfrage; Boll.)

Mutilla Sayi.

Mutilla Sayi, Blake, Trans. Am. Ent. Soc. iii., p. 229.

Three ♂ specimens. (Belfrage.)

Mutilla ornativentris.

Mutilla ornativentris, Cress. Proc. Ent. Soc. Phil. iv., p. 438.

Seven ♀ specimens. (Belfrage; Boll.)

Mutilla scrupea.

Mutilla scrupea, Say, Bost. Journ. Nat. Hist. i., p. 297.

One ♂ specimen. (Belfrage.)

Mutilla Copano.
Mutilla Copano, Blake, Trans. Am. Ent. Soc. iii., p. 232.
One ♂ specimen. (Belfrage.)

Mutilla scæva.
Mutilla scæva, Blake, Trans. Am. Ent. Soc. iii., p. 232.
One ♂ specimen from Comal Co.

Mutilla pennsylvanica.
Mutilla pennsylvanica, St. Farg. Hym. iii., p. 628.
Four ♂ specimens. (Boll; Heiligbrodt.)

Mutilla auripilis.
Mutilla auripilis, Blake, Trans. Am. Ent. Soc. iii., p. 233.
Four ♂ specimens. (Belfrage.)

Mutilla Orcus.
Mutilla Orcus, Cress. Proc. Ent. Soc. Phil. iv., p. 428.
Twelve ♂ ♀ specimens. (Belfrage; Boll; Heiligbrodt.

Mutilla Gorgon.
Mutilla Gorgon, Blake, Trans. Am. Ent. Soc. iii., p. 233.
Four ♀ specimens. (Belfrage; Boll.)

Mutilla Zelaya.
Mutilla Zelaya, Blake, Trans. Am. Ent. Soc. iii., p. 234.
Three ♂ ♀ specimens. (Belfrage.)

Mutilla Comanche.
Mutilla Comanche, Blake, Trans. Am. Ent. Soc. iii., p. 234.
Three ♂ ♀ specimens from Comal Co.

Mutilla Clotho.
Mutilla Clotho, Blake, Trans. Am. Ent. Soc. iv., p. 72.
One ♀ specimen. (Boll. Coll. Mus. Comp. Zoology.)

Mutilla aureola.
Mutilla aureola, Cress. Proc. Ent. Soc. Phil. iv., p. 385.
One ♀ specimen. (Heiligbrodt.)

Mutilla Leda.
Mutilla Leda, Blake, Trans. Am. Ent. Soc. iv., p. 72.
Two ♀ specimens. (Belfrage; Boll.)

Mutilla fulvohirta.
Mutilla fulvohirta, Cress. Proc. Ent. Soc. Phil. iv., p. 433.
One ♂ specimen. (Boll.)

Mutilla Chiron.
Mutilla Chiron, Blake, Trans. Am. Ent. Soc. iv., p. 72.
Two ♀ specimens. (Belfrage.)

Mutilla Ægina.
Mutilla Ægina, Cress. Proc. Ent. Soc. Phil. iv., p. 435.
Two ♀ specimens. (Boll.)

Mutilla Bellona.
Mutilla Bellona, Cress. Proc. Ent. Soc. Phil. iv., p. 434.
One ♀ specimen. (Belfrage.)

Mutilla occidentalis.
Mutilla occidentalis, Linn. Blake, Trans. Am. Ent. Soc. iii., p. 236.
Five ♂ ♀ specimens. (Boll.)

Mutilla Creusa.
Mutilla Creusa, Cress. Proc. Ent. Soc. Phil. iv. p. 431.
Eleven ♀ specimens. (Belfrage; Boll; Heiligbrodt.)

Mutilla bioculata.
Mutilla bioculata, Cress. Proc. Ent. Soc. Phil. iv., p. 431.
Four ♂ specimens. (Belfrage; Boll.)

Mutilla Castor.
Mutilla Castor, Blake, Trans. Am. Ent. Soc. iii., p. 237.
Five ♂ specimens. (Boll.)

Mutilla fenestrata.
Mutilla fenestrata, St. Farg. Hym. iii., p. 627.
Six ♂ specimens. (Belfrage; Boll; Heiligbrodt.)

Mutilla Creon.
Mutilla Creon, Blake, Trans. Am. Ent. Soc. iv., p. 73.
One ♂ specimen. (Coll. G. W. Belfrage.)

Mutilla Bexar.
Mutilla Bexar, Blake, Trans. Am. Ent. Soc. iii., p. 238.
Two ♂ specimens. (Belfrage.)

Mutilla Waco.
Mutilla Waco, Blake, Trans. Am. Ent. Soc. iii., p. 238.
Four ♀ specimens. (Belfrage.)

Mutilla Admetus.
Mutilla Admetus, Blake, Trans. Am. Ent. Soc. iv. p. 74.
One ♂ specimen from Comal Co.

Mutilla macra.
Mutilla macra, Cress. Proc. Ent. Soc. Phil. iv., p. 429.
One ♂ specimen. (Boll.)

Mutilla canella.
Mutilla canella, Blake, Trans. Am. Ent. Soc. iii., p. 239.
One ♂ specimen. (Belfrage.)

Mutilla macilenta.

Mutilla macilenta, Blake, Trans. Am. Ent. Soc. iii., p. 239.

One ♂ specimen. (Belfrage.)

Mutilla 4-guttata.

Mutilla 4-guttata, Say, West. Quar. Rep. ii. p. 74.

Five ♀ specimens. (Boll; Heiligbrodt.)

Mutilla ferrugata.

Mutilla ferrugata, Fabr. Blake, Trans. Am. Ent. Soc. iii., p. 246.

Fifteen ♀ specimens. (Belfrage; Boll; Heiligbrodt.)

Mutilla mutata.

Mutilla mutata, Blake, Trans. Am. Ent. Soc. iii., p. 247.

Two ♀ specimens. (Belfrage; Boll.)

Mutilla scævola.

Mutilla scævola, Blake, Trans. Am. Ent. Soc. iii., p. 247.

Two ♀ specimens. (Belfrage.)

Mutilla balteola.

Mutilla balteola, Blake, Trans. Am. Ent. Soc. iii., p. 248.

Two ♀ specimens. (Belfrage; Boll.)

Mutilla propinqua.

Mutilla propinqua, Cress. Proc. Ent. Soc. Phil. iv., p. 433.

One ♂ specimen. (Belfrage.)

Mutilla Oceola.

Mutilla Oceola, Blake, Trans. Am. Ent. Soc. iii., p. 248.

One ♂ specimen. (Belfrage.)

Mutilla flavida.

Mutilla flavida, Blake, Trans. Am. Ent. Soc. iii., p. 249.

One ♂ specimen. (Belfrage.)

Mutilla grandiceps.

Mutilla grandiceps, Blake, Trans. Am. Ent. Soc. iv., p. 74.

Two ♂ ♀ specimens. (Coll. G. W. Belfrage.)

Mutilla Gila.

Mutilla Gila, Blake, Trans. Am. Ent. Soc. iii., p. 250.

One ♂ specimen. (Coll. G. W. Belfrage.)

Mutilla simillima.

Mutilla simillima, Smith, Brit. Mus. Cat. iii., p. 62.

Four ♀ specimens. (Belfrage; Boll.)

Mutilla brazoria.

Mutilla brazoria, Blake, Trans. Am. Ent. Soc. iii., p. 255.

Three ♀ specimens. (Belfrage.)

Mutilla Electra.
Mutilla Electra, Blake, Trans. Am. Ent. Soc. iv., p. 74.
Two ♀ specimens. (Boll.)

Mutilla albopilosa.
Mutilla albopilosa, Blake, Trans. Am. Ent. Soc. iv., p. 74.
One ♀ specimen from Comal Co.

Agama imperialis.
Agama imperialis, Blake, Trans. Am. Ent. Soc. iii., p. 260.
Three ♂ specimens. (Belfrage.)

Agama Nokomis.
Agama Nokomis, Blake, Trans. Am. Ent. Soc. iii., p. 260.
Four ♂ specimens. (Belfrage.)

Agama Danaus.
Agama Danaus, Blake, Trans. Am. Ent. Soc. iii., p. 261.
Six ♂ specimens. (Belfrage.)

Agama melicausa.
Agama melicausa, Blake, Trans. Am. Ent. Soc. iii., p. 261.
Two ♂ specimens. (Belfrage.)

Agama Tapajos.
Agama Tupajos, Blake, Trans. Am. Ent. Soc. iii., p. 162.
Ten ♂ specimens. (Belfrage.)

Agama pallida.
Agama pallida, Blake, Trans. Am. Ent. Soc. iii., p. 263.
Four ♂ specimens. (Belfrage.)

Agama hyalina.
Agama hyalina, Blake, Trans. Am. Ent. Soc. iii., p. 263.
Two ♂ specimens. (Belfrage.)

Agama Belfragei.
Agama Belfragei, Blake, Trans. Am. Ent. Soc. iii., p. 263.
Six ♂ specimens. (Coll. G. W. Belfrage.)

Agama Aulus.
Agama Aulus, Blake, Trans. Am. Ent. Soc. iv., p. 75.
One ♂ specimen. (Coll. G. W. Belfrage.)

Agama minuta.
Agama minuta, Blake, Trans. Am. Ent. Soc. iv., p. 76.
One ♂ specimen. (Coll. G. W. Belfrage.)

Agama juxta.
Agama juxta, Blake, Trans. Am. Ent. Soc. iv., p. 76.
One ♂ specimen. (Coll. G. W. Belfrage.)

Agama attenuata.
Agama attenuata, Blake, Trans. Am. Ent. Soc. iv., p. 76.
One ♂ specimen. (Coll. G. W. Belfrage.)

SCOLIADÆ.

Myzine sexcincta.

Scolia sexcincta, Fabr. Syst. Ent., p. 356. (For synonymy see Proc. Ent. Soc. Phil. iv., p. 442.)

Twelve ♂ ♀ specimens. (Belfrage; Boll; Heiligbrodt.)

Myzine costata.

Meria costata, Say, Bost. Journ. Nat. Hist. i., p. 361.

Two ♀ specimens found on Shumach flowers in August. (Belfrage; Boll.) This is doubtless the ♀ of *Myzine hamatus*, Say.

Myzine dubiosa, n. sp.

♀.—Black, shining, clothed with sparse glittering white hairs, head and thorax with large scattered punctures; a broad band immediately above antennæ, anterior orbital line, narrow line behind eyes, and a spot on middle of occiput, yellow; clypeus, mandibles except tips, and scape ferruginous, flagellum reddish beneath; large subtriangular spot on each side of prothorax, a short submarginal line behind, large spot on disc of mesothorax, a spot over tegulæ, band on scutellum, postscutellum, a spot, indented anteriorly, on each side of mesothorax, a small spot on basal middle, and two spots on pleura, that beneath tegulæ large and subtriangular, all yellow; the surface around the yellow basal spot of metathorax rugose, the posterior face concave, the surrounding surface faintly transversely wrinkled; tegulæ dull testaceous, basal margin yellow; wings pale yellowish hyaline, the costa near apex very faintly dusky; legs black, femora tinged with reddish especially beneath, tibiæ and tarsi fulvo-ferruginous, anterior tibiæ pale in front, posterior coxæ with a yellow spot; abdomen smooth and polished, subiridescent, very sparsely punctured; first segment with two, nearly connected, subapical yellow spots; second segment with a large subbasal yellow spot on each side; three following segments with a basal yellow band, narrowed medially and subinterrupted; apical segment flattened, longitudinally striated, tinged with sanguineous; second and third ventral segments, each with a rounded lateral yellow spot. Length .50 inch.

One specimen, found on Shumach flowers with the preceding species. (Coll. G. W. Belfrage.) Closely allied to *sexcincta* ♀, but very much smaller, and with clearer wings.

Myzine texana, n. sp.

♀.—Black, shining, with large scattered punctures, more dense on face and prothorax, clothed with sparse white hairs, especially thick on cheeks and legs; a broad band immediately above antennæ, confluent with anterior orbital line which continues narrowly to middle of occiput, and a line behind eyes, also connected to the spot on middle of occiput by an arcuate narrow line, lemon-yellow; mandibles except tips and scape beneath ferruginous; a large spot on each side of prothorax, a large triangular spot on disc of mesothorax, a spot above tegulæ, band on scutellum, postscutellum, a large spot acutely indented anteriorly on each side of metathorax, and two spots on pleura the posterior one small and rounded, all lemon-yellow; anterior margin of mesothorax opaque; metathorax behind with a pale sericeous pile, base opaque, the

disc rugose; tegulæ pale testaceous, basal margin yellow; wings hyaline, faintly tinged with yellow, nervures pale fulvous; legs as in *dubiosa*, with the anterior tibiæ yellow in front, and a yellow spot on tips of their femora beneath; abdomen smooth, polished, subiridescent, very sparsely punctured, marked as in *dubiosa*, the color lemon-yellow, the spots on first segment connected by a narrow line at base, the band on fifth segment interrupted medially; apical segment dull black, longitudinally striated; venter as in *dubiosa*. Length .65 inch.

One specimen from Comal Co. Easily separated from *sexcincta* by the clear wings and triangular yellow line on head above.

Myzine rufiventris. n. sp.

♂.—Black, shining, clothed with a short, erect glittering white pubescence, punctures somewhat dense and shallow, fine and dense on face, sparse on occiput; mandibles and tegulæ piceous; metathorax rounded, coarsely reticulated; prothorax larger than in *sexcincta*, rounded above and but slightly truncate anteriorly; wings dark fuscous, paler at apex, second marginal cell subtriangular, receiving the first recurrent nervure before the middle, the third submarginal obliquely quadrate, receiving the second recurrent nervure also before the middle; legs black, with pale glittering hairs; abdomen shining, yellow-ferruginous, basal segment and anal hook black. Length .55 inch.

One specimen. (Boll. Coll. Mus. Comp. Zoology.)

Tiphia inornata.

Tiphia inornata, Say, Long's 2d Exped. ii., p. 331.

Ten ♂ ♀ specimens. (Belfrage; Boll.)

Scolia bicincta.

Scolia bicincta, Fabr. Ent. Syst. ii., p. 234.

Five ♂ ♀ specimens. (Boll.)

Scolia dubia.

Scolia dubia, Say, Bost. Journ. Nat. Hist. i., p. 364.

Var. *Scolia hæmatodes*, Burm. Ahb. Nat. Ges. Halle, i., p. 33.

Twelve ♂ ♀ specimens. (Belfrage; Boll; Heiligbrodt.)

Scolia nobilitata.

Scolia nobilitata, Fabr. Syst. Piez., p. 244.

Seven ♂ ♀ specimens. (Belfrage; Boll; Heiligbrodt.)

Scolia Lecontei.

Scolia (*Discolia*) *Lecontei*, Cress. Trans. Am. Ent. Soc. i., p. 376.

Eleven ♂ ♀ specimens. (Belfrage; Boll.) Abundant in Western Texas from August to October. Mr. Belfrage writes that they rest during the night and chilly weather in clusters, closely attached to stems of grass and plants.

Elis ephippium.

Scolia ephippium, Say, Bost. Journ. Nat. Hist. i., p. 363.

One ♀ specimen. (Heiligbrodt.)

Elis 4-maculata.

Vespa 4-maculata, Drury, Ins. ii. pl. 39, fig. 2, ♀.
Scolia 4-notata, Fabr. Syst. Piez., p. 240, ♂.
Four ♂ ♀ specimens. (Boll; Heiligbrodt.)

Elis plumipes.

Sphex plumipes, Drury, Ins. i. pl. 44, fig. 5, ♀.
Scolia radula, Fabr. Ent. Syst. ii., p. 232, ♂.
Six ♂ ♀ specimens. (Belfrage; Boll; Heiligbrodt.)

Elis texensis.

Elis texensis, Sauss. Ann. Soc. Ent. Fr. 3 sér. vi., p. 224.
One ♂ specimen. (Belfrage.)

Elis Xantiana.

Elis Xantiana, Sauss. Ann. Soc. Ent. Fr. 4 sér. iii., p. 18.
Scolia regina, Cress. Proc. Ent. Soc. Phil. iv., p. 447.
Two ♂ ♀ specimens. (Belfrage.)

Elis lupina, n. sp.

♀.—Black, shining, with large scattered punctures; head ferruginous, cheeks and occiput black, clothed with dense golden fulvous pubescence, also the face; antennæ black, scape ferruginous; prothorax tinged with ferruginous, with a triangular yellow spot on each side; disc of mesothorax and of scutellum smooth, impunctured, a well-impressed line over tegulæ; metathorax very short, broadly truncate behind, the posterior face mostly dull ferruginous, sparsely punctured; pleura with long, rather dense golden pubescence; tegulæ fulvous; wings fuliginous, strongly violaceous, costa broadly dark fuliginous, costal nerve pale fulvous; three submarginal cells, the second receiving two recurrent nervures; legs fulvo-ferruginous, with golden hairs; abdomen black, shining, sparsely, deeply punctured, base of first segment and extreme apical margin of remaining segments with golden pubescence, otherwise the pubescence and fringe above is black; segments 1—4 each with two yellow spots, those on first and fourth segments narrow and nearly meeting on disc, those on second and third segments larger and somewhat rounded; apical segment brownish, rugose; venter fusco-ferruginous, the segments fringed at apex with long dense golden pubescence. Length .65 inch.

One specimen. (Boll. Coll. Mus. Comp. Zoology.) This is allied to *Xantiana,* Sauss., ♀, but is larger and more robust, the black color predominating, whereas in *Xantiana* the ferruginous color predominates.

POMPILIDÆ.

Pompilus philadelphicus.

Pompilus philadelphicus, St. Farg. Hym. iii., p. 423.
Fourteen ♂ ♀ specimens. (Belfrage; Boll.) One ♂ specimen, which may be named var. *sericatus,* has the head, thorax, legs and abdomen covered with a dense pale sericeous pile.

Pompilus maurus.

Pompilus maurus, Cress. Trans. Am. Ent. Soc. i., p. 88.

One ♂ specimen. (Belfrage.)

Pompilus scelestus.

Pompilus scelestus, Cress. Proc. Ent. Soc. Phil. iv., p. 451.

Two ♀ specimens. (Belfrage.)

Pompilus tenebrosus.

Pompilus tenebrosus, Cress. Proc. Ent. Soc. Phil. iv., p. 453.

Ten ♂ ♀ specimens. (Belfrage; Boll.)

Pompilus ingenuus.

Pompilus ingenuus, Cress. Trans. Am. Ent. Soc. i., p. 89.

Three ♂ specimens. (Belfrage.)

Pompilus cylindricus.

Pompilus cylindricus, Cress. Trans. Am. Ent. Soc., i., p. 92.

One ♂ specimen. (Belfrage.)

Pompilus tropicus.

Sphex tropicus, Linn. Syst. Nat. i., p. 945.

Three ♀ specimens. (Belfrage, Boll; Heiligbrodt.)

Pompilus atrox.

Pompilus atrox, Dahlb. Hym. Eur. i., p. 63. Cress. Trans. Am. Ent. Soc. i., p. 98.

Four ♂ ♀ specimens. (Belfrage; Boll.)

Pompilus marginatus.

Pompilus marginatus, Say, Long's 2d Exped. ii., p. 333.

Six ♀ specimens. (Belfrage; Boll.)

Pompilus americanus.

Pompilus americanus, Beauv. Ins. Afr. et Am., p. 117, pl. 3, fig. 6.

Three ♀ specimens. (Belfrage; Boll.)

Pompilus algidus.

Pompilus algidus, Smith, Brit. Mus. Cat. iii., p. 158.

Seven ♂ ♀ specimens. (Boll; Heiligbrodt.)

Pompilus interruptus.

Ceropales interruptus, Say, Bost. Journ. Nat. Hist. i., p. 365.

Five ♂ ♀ specimens. (Belfrage; Boll.)

Pompilus ferrugineus.

Ceropales ferrugineus, Say, Long's 2d Exped. ii., p. 334.

Five ♂ ♀ specimens. (Boll; Heiligbrodt.)

Priocnemis fulvicornis.

Priocnemis fulvicornis, Cress. Trans. Am. Ent. Soc. i., p. 112.

Ten ♂ ♀ specimens. (Belfrage; Boll.)

Priocnemis unifasciatus.

Pompilus unifasciatus, Say, Amer. Ent. pl. 42.

Four ♀ specimens. (Boll.)

Priocnemis terminatus.

Pompilus terminatus, Say, Amer. Ent. pl. 42.

Six ♂ ♀ specimens. (Belfrage; Boll.) A common species found on flowers of the Wild Sage (*Croton capitatum*).

Priocnemis Heiligbrodtii, n. sp.

♀.—Robust, black, opaque, head and thorax velvety, clothed with a scattering black pubescence; head, when viewed from above, transversely subquadrate, full behind the eyes; anterior margin of clypeus broadly subarcuate; labrum and mandibles piceous brown, the latter short and very robust; antennæ short and thick, not reaching beyond tip of scutellum, brown sericeous; metathorax rounded above, abruptly so behind; posterior margin of prothorax arcuate; wings orange ferruginous, apical margin narrowly fuliginous; marginal cell pointed at tip, second submarginal cell scarcely half the length of first, subquadrate, rounded towards base of wing, receiving the first recurrent nervure a little before the middle, third submarginal cell nearly twice larger than the second, receiving the recurrent nervure at the middle; legs robust, shining, sparsely clothed with black hairs; abdomen oblong-ovate, smooth and shining, sparsely punctured, sides and apex with black hairs. Length .70 inch.

One specimen. (Coll. L. Heiligbrodt.) Allied to *terminalis* and *texanus*, from which it is at once distinguished by the shorter and stouter antennæ and legs, and smooth shining abdomen.

Priocnemis texanus, n. sp.

♀.—Velvety-black; apical margin of clypeus arcuate; posterior margin of prothorax angular; metathorax rounded; wings bright orange-yellow, more or less fiery, the apex fuliginous, neuration much as in *terminatus*, with the marginal cell more acute at tip; abdomen with a slight bluish or purplish reflection, sometimes scarcely perceivable. Length .60—.80 inch.

♂.—Much smaller, slender, with the wings fusco-ferruginous, sometimes broadly fuliginuous at apex. Length .55 inch.

Ten ♂ ♀ specimens. (Belfrage; Boll.) Closely allied to *terminatus*, but larger, with the clypeus less arcuate at apex and the posterior margin of prothorax more angular; the wings are also darker.

Priocnemis flammipennis.

Pompilus flammipennis, Smith, Brit. Mus. Cat. iii., p. 155.

Four ♂ ♀ specimens. (Belfrage; Boll; Heiligbroadt.)

Priocnemis conicus.

Pompilus conicus, Say, Bost. Journ. Nat. Hist. i., p. 305.

One ♀ specimen. (Belfrage.)

Priocnemis validus.

Priocnemis validus, Cress. Trans. Am. Ent. Soc. i., p. 116.

Two ♀ specimens. (Belfrage.)

Priocnemis nothus.

Priocnemis nothus, Cress. Trans. Am. Ent. Soc. i., p. 118.

One ♀ specimens. (Belfrage.)

Priocnemis nuperus.

Priocnemis nuperus, Cress. Trans. Am. Ent. Soc. i., p. 118.

One ♀ specimen. (Belfrage.)

Priocnemis facetus, n. sp.

♀.—Small, uniformly pale ferruginous, shining; antennæ paler, sericeous; posterior margin of prothorax arcuate; metathorax smooth, convex, closely and minutely punctured; wings dusky hyaline, a fuscous band on apical fourth, a large spot covering marginal, second and third submarginal and apex of discoidal cells and the extreme apex also fuscous, marginal cell long, lanceolate, apex acute, the second and third submarginal cells much as in *Agenia accepta*, Cress. (Trans, etc. i., p. 130, fig. 11); legs long, slender, posterior tarsi fuscous; abdomen polished, dusky towards apex which is clothed with yellowish hair. Length .27 inch.

One specimen. (Coll. G. W. Belfrage.)

Agenia Belfragei, n. sp.

♂.—Black, opaque, clothed with short black pubescence; tips of mandibles ferruginous; head not wider than thorax; antennæ robust, gradually narrowed to apex; thorax long, subcompressed, sides parallel, posterior margin of prothorax arcuate; metathorax rounded, finely and densely punctured; wings ample, dark yellow, tinged with dusky, especially at apex which is narrowly margined with fuliginous; abdomen very closely and minutely punctured, sutures between first, second and third segments constricted, apex emarginate, fringed with long black pubescence. Length .60 inch.

Two specimens. (Belfrage.) Easily known by the yellow wings and long black body.

Agenia architectus.

Pompilus architectus, Say, Bost. Journ. Nat. Hist. i., p. 303.

One ♀ specimen. (Belfrage.)

Agenia mellipes.

Pompilus mellipes, Say, Bost. Journ. Nat. Hist. i., p. 304.

One ♀ specimen. (Heiligbrodt.)

Agenia longa, n. sp.

♀.—Form long, narrow, parallel, black, impunctured, thinly covered with a fine pale sericeous pile; anterior margin of clypeus shining, truncate; mandibles piceous; antennæ as long as head and thorax, slender; thorax long, sides parallel, posterior margin of prothorax subangular; metathorax long, convex, even; wings smoky hyaline, darker at tips, marginal cell broadly rounded at tip, not reaching beyond third submarginal cell, second submar-

ginal truncate at tip, pointed at base, third submarginal as long as second, narrowed to one-half its length towards marginal, both submarginal cells receiving the recurrent nervures in the middle; legs long, slender, the posterior pair very long; abdomen about as long as thorax, subpetiolate, smooth, shining, fulvo-ferruginous, fourth and following segments fuscous. Length .38 inch.

One specimen. (Coll. G. W. Belfrage.)

Agenia accepta.

Agenia accepta, Cress. Trans. Am. Ent. Soc. i., p. 130.

One ♀ specimen. (Belfrage.)

Parapompilus lævifrons.

Ferreola lævifrons, Cress. Proc. Bost. Soc. Nat. Hist. vii., p. 376.

Two ♀ specimens. (Belfrage.)

Parapompilus vicinus.

♀.—Black, opaque, with a more or less strong violaceous reflection; head covered with a pile like that on thorax, but less dense and faintly purplish; mandibles piceous; metathorax deeply excavated posteriorly; wings violaceous black; abdomen much as in *lævifrons*, less compressed at apex. Length .53 inch.

Three specimens. (Belfrage.) Allied to *lævifrons*, but much smaller and the head not smooth and polished as in that species, but with a clothing as on thorax.

Parapompilus texanus, n. sp.

♀.—Black, opaque, with a purplish sericeous reflection in certain lights, head smooth and shining; metathorax transversely subconcave on posterior face; wings violaceous-black; legs sericeous; abdomen beyond first segment orange-ferruginous, covered with a dense silvery sericeous pile; venter blackish. Length .65—.70 inch.

Three ♀ specimens. (Belfrage.)

Parapompilus contiguus, n. sp.

♀.—Black, opaque; head shining, vertex thinly covered with a reddish-brown pile, sides of face and of clypeus with a silvery-cinereous pile; mandibles dull reddish at tips; pro- and mesothorax fulvous, with a golden sericeous pile; scutellum brown-black; metathorax above stained with dull fulvous; wings violaceous black, posterior pair paler; legs entirely black, sericeous, especially beneath; abdomen not longer than head and thorax, second and third segments except narrow apical margin of the latter which is brown, fulvous, with a golden reflection; first and fourth segments deep black, two apical segments silvery. Length .65 inch.

One specimen. (Boll. Coll. Mus. Comp. Zool.) Closely allied to *Mariæ*, Cresson.

Parapompilus legatus.

Pompilus? legatus, Cress. Trans. Am. Ent. Soc. i., p. 109.

Two ♀ specimens. (Boll.)

Notocyphus dorsalis, n. sp,

♀.—Long, narrow, black, subsericous, abdomen shining, apex pointed and subcompressed; vertex, occiput, prothorax above, mesothorax, scutellum, postscutellum and metathorax above fulvo-ferruginous; wings violaceous-black. Length .60—1 inch.

Four specimens. (Belfrage.) Closely allied to *plagiatus*, Smith, of which it may be a variety. This and the next species were found on Solidago flowers in September and October.

Notocyphus texanus, n. sp.

♂.—Black, sericeous, head and thorax in front with short thin black pubescence; anterior orbits, short narrow line on posterior orbits, posterior margin of prothorax, broader medially, a dot on scutellum, a band near base of third abdominal segment slightly interrupted centrally, and a spot on apical segment, whitish; metathorax and posterior coxæ with a silvery sericeous pile, more obvious in certain lights; wings blackish, with a beautiful violet iridescence; abdomen narrow, subfusiform. Length .60—.73 inch.

Four specimens. (Belfrage.) Allied to *albopictus*, Smith.

Planiceps feralis, n. sp.

♀.—Small, black with a violaceous reflection, clothed with a very short, silvery cinereous pile; antennæ short, robust; clypeus rounded at apex; posterior margin of prothorax broadly arcuate, lateral angles of metathorax densely clothed with a silvery-white pubescence; wings hyaline, apex dusky; legs densely silvery sericeous at base; abdomen about as long as thorax, narrow, subcompressed at tip, the three basal segments except apical margins covered with a silvery cinereous pile, more obvious in certain lights. Length .33 inch.

One specimen. (Coll. G. W. Belfrage.)

Aporus fasciatus.

Aporus fasciatus, Smith, Brit. Mus. Cat. iii. p. 175.

One ♂ specimen. (Belfrage.)

Aporus minimus, n. sp.

♂.—Very small, slender, black, with a thin cinereous pile; antennæ robust; posterior margin of prothorax transverse, slightly emarginate centrally; wings faintly dusky, marginal cell narrow, lanceolate, very acute at tip, second submarginal scarcely half the length of the first and much narrowed on both sides towards the marginal, receiving the first recurrent near base and the second about the middle, the third discoidal cell transverse, pointed beneath, rounded above; legs long, especially posterior pair; abdomen as long as head and thorax, narrow, subcompressed. Length .16 inch.

One specimen. (Coll. G. W. Belfrage.)

Aporus rufiventris, n. sp.

♀.—Black, opaque, sericeous; metathorax covered with a very dense dull cinereous pile, posterior face excavated and transversely wrinkled; wings dusky, apical third fuliginous, neuration as in *minimus;* legs strongly sericeous; abdomen entirely bright fulvo-ferruginous, sericeous. Length .30 inch.

One specimen. (Coll. G. W. Belfrage.)

Ceropales bipunctata.

Ceropales bipunctata, Say, Long's 2d Exped. ii. p. 334.

Five ♂ ♀ specimens. (Belfrage; Boll.)

Ceropales nigripes.

Ceropales nigripes, Cress. Trans. Am. Ent. Soc. i., p. 139.

One ♀ specimen. (Belfrage.)

Ceropales texana, n. sp.

♂.—Black, abdomen and leg sericeous; face, two spots on clypeus, scape beneath, posterior margin of prothorax above, spot behind scutellum, posterior angles of metathorax, spot on each side of second abdominal segment and two or three spots on apical segments, pale lemon-yellow; face silvery sericeous; wings violaceous-black. Length .53 inch.

One specimen. (Coll. G. W. Belfrage.)

Ceropales elegans, n. sp.

♀.—Large, pale ferruginous, with a strong silvery sericeous pile: face, clypeus, broad anterior orbits, narrow posterior orbits, margins of prothorax, broad behind, a spot on each side anteriorly, spot on scutellum and postscutellum, apical angles of metathorax, anterior coxæ beneath, line on posterior pair, extreme tips of femora, and broad apical margins of abdominal segments, those on two basal segments sinuate and uneven anteriorly, all citron-yellow; tips of antennæ blackish; mesothorax sparsely punctured, longitudinally depressed on each side of disk, with an impressed longitudinal line over tegulæ; metathorax obliquely flattened behind, with a deeply impressed central line, brilliantly silvery-sericeous; posterior legs very long, their coxæ subcompressed, broadly dilated at base; wings yellow-hyaline, extreme tips dusky. Length .55 inch.

One specimen. (Coll. G. W. Belfrage.)

Ceropales fulvipes, n. sp.

♀.—Small, black, shining, covered with a more or less obvious silvery-sericeous pile; clypeus, broad anterior orbits, dilated above, narrow posterior orbits, scape beneath, posterior margin of prothorax, a spot on each side anteriorly, tegulæ, spot on scutellum and on postscutellum, apical angles of metathorax, four anterior coxæ beneath, posterior pair at tips and on outer side, four anterior knees before, anterior margins of abdominal segments 1—5, broad on first and second the anterior margins of which are uneven, narrow on remaining segments, sinuate laterally, all pale lemon-yellow; labrum testaceous and mandibles reddish toward tips; wings yellowish-hyaline, paler at tips; legs fulvous, posterior pair not unusually long, all the coxæ black at base, posterior pair broad at base, fulvous beneath; abdomen short, robust, apical segment pearly-white; venter and antennæ beneath brownish. Length .35 inch.

Two specimens on Solidago flowers in October. (Belfrage.) Allied to *longipes*, Smith.

Mygnimia ustulata.

Hemipepsis ustulata, Dahlb. Hym. Eur. i., p. 123.

Five ♂ ♀ specimens. (Belfrage; Boll.)

Pepsis formosa.

Pompilus formosus, Say, Amer. Ent. pl. 42.

Twelve ♂ ♀ specimens. (Belfrage; Boll; Heiligbrodt.) This is probably identical with *cærulea*, Linn. In size it varies from .65—1.50 inch, and is distinguished at once from *marginata* by the clear apical margin of the wings.

Pepsis marginata.

Pepsis marginata, Beauv. Ins. p. 94, pl. 2, figs. 2, 3.

Ten ♂ ♀ specimens. (Belfrage; Boll; Heiligbrodt.) One ♀ specimen, which may be named var. *sericata*, is covered with a dense silvery-sericeous pile, as in a specimen of *Pompilus philadelphicus*, mentioned above.

Pepsis dubitata.

Pepsis dubitata, Cress. Trans. Am. Ent. Soc. i., p. 144.

Six ♂ ♀ specimens. (Belfrage; Boll; Heiligbrodt.)

SPHEGIDÆ.

Ammophila grossa, n. sp.

♀.—Large and very robust, black, subopaque, sparsely clothed with a long black pubescence: head broader than thorax, face broad, densely punctured, clypeus large, rugose laterally, apex with a large deep fovea, apical margin dentate, lateral margin broad, slightly reflexed; mandibles fulvo-testaceous above, black at base and apex; thorax densely punctured; metathorax opaque, transversely striated, sides obliquely striated, apex abrupt, with a deep fovea above; tegulæ dull testaceous on posterior margin; wings fusco-hyaline; legs shining; abdomen robust, shining, yellow-ferruginous, petiole short, black, not extending beyond posterior trochanters, second segment black at base and narrowly on disk half way to apex, a transverse stain on apex of fourth segment and the following segments, except base of fifth, black. Length .95 inch.

One specimen. (Coll. L. Heiligbrodt.) A very robust species, having much the general appearance of a *Sphex*, resembling somewhat *L. rufiventris*, described below.

Ammophila Gryphus.

Ammophila Gryphus, Smith, Brit. Mus. Cat. iv., p. 222.

Eight ♂ ♀ specimens. (Belfrage; Boll; Heiligbrodt.)

Ammophila inepta, n. sp.

♀.—Black, with sparse pale pubescence; clypeus with large sparse punctures; prothorax with a small notch on disk above; mesothorax sparsely punctured, more thickly so laterally, disk with deeply impressed longitudinal groove, and a shallow depression on each side; scutellum with coarse longitudinal striæ; postscutellum rugose; metathorax with pale pubescence, coarsely punctured laterally and apically, the dorsal space flattened, rugose at base, shining and transversely, somewhat obliquely, striated toward apex, extreme

apex sometimes with a silvery spot on each side; pleura sparsely punctured, an oblique stripe on posterior margin and the tubercles silvery; tegulæ shining black; wings hyaline, dusky at tips; legs entirely black, somewhat sericeous; abdomen subsericeous, extreme apex of second joint of petiole and the following segment except narrow apical margin, pale red. Length .75—.85 inch.

♂.—Face much narrower and with the clypeus densely silvery; pubescence of head and thorax more dense; sides of second joint of abdominal petiole sometimes reddish, the following segment with a central black line above. Length .70—.75 inch.

Five ♂ ♀ specimens. (Belfrage; Boll.)

Ammophila vulgaris.

Ammophila vulgaris, Cress. Proc. Ent. Soc. Phil. iv., p. 458.

Five specimens. (Belfrage.)

Ammophila pictipennis.

Ammophila pictipennis, Walsh, Am. Ent. i., p. 164.

Four ♂ ♀ specimens. (Belfrage; Boll; Heiligbrodt.)

Ammophila intercepta.

Ammophila intercepta, St. Farg. Hym. iii., p. 378.

Six ♂ ♀ specimens. (Belfrage; Boll.)

Ammophila gracilis.

Ammophila gracilis, St. Farg. Hym. iii., p. 381.

Nine ♂ ♀ specimens. (Belfrage; Boll.)

Pelopœus cementarius.

Sphex cementaria, Drury, Ins. i., p. 105.

Six specimens. (Belfrage; Boll; Heiligbrodt.) One specimen has the petiole of abdomen entirely yellow, and another has the abdomen entirely black.

Pelopœus cæruleus.

Sphex cærulea, Linn. Syst. Nat. i., p. 941.

Eleven ♂ ♀ specimens. (Belfrage; Boll; Heiligbrodt.)

Pelopœus texanus, n. sp.

♀.—Color paler blue than that of *cæruleus*, and clothed with a thin whitish sericeous pubescence, except on head where it is black; face silvery; thorax sparsely punctured; prothorax deeply notched above; mesothorax deeply channeled medially; scutellum smooth, shining, sparsely punctured; metathorax shining, finely and closely punctured on the sides, more sparsely so above, where the surface is nearly smooth, not grooved, but with a shallow fovea near apex, pleura closely punctured; tegulæ pale on outer margin; wings fuscous, paler at base; legs with short pale pubescence; abdomen as in *cæruleus*, pale sericeous. Length .70 inch.

♂.—Darker blue than ♀, the pubescence more dense; face densely silvery; wings hyaline, apical margin fuscous. Length .65 inch.

Two specimens from Dallas and Comal Counties. Easily distinguished from *cæruleus* by the pale pubescence of body.

Podium rufipes.

Podium rufipes, Fabr. Syst. Piez. p. 183.

Two specimens. (Belfrage.)

Chlorion cæruleum.

Sphex cærulea, Drury, Ins. ii., p. 75, pl. 39, fig. 8.

Two ♀ specimens. (Boll; Heiligbrodt.)

Sphex pennsylvanica.

Sphex pennsylvanica, Linn. Syst. Nat. i., p. 941.

Five ♂ ♀ specimens. (Belfrage; Boll; Heiligbrodt.)

Sphex habena.

Sphex habena, Say, Insects of Louisiana, p. 14.

Eight ♂ ♀ specimens. (Belfrage; Boll.) Found quite commonly on Solidago flowers in September and October.

Sphex apicalis.

Sphex apicalis, Smith, Brit. Mus. Cat. iv., p. 262.

Six ♂ ♀ specimens. (Belfrage; Boll.)

Sphex flavipes.

Sphex flavipes, Smith, Brit. Mus. Cat. iv., p. 263.

One ♀ specimen found on Sumach flowers in August. (Belfrage.)

Sphex tibialis.

Sphex tibialis, St. Farg. Hym. iii., p. 339.

Ten ♂ ♀ specimens. (Belfrage; Boll.)

Sphex abdominalis, n. sp.

♂.—Deep black, velvety, clothed with a thin black pubescence; mesothorax with a finely impressed central line; metathorax above finely transversely aciculated; legs entirely black; wings black, subviolaceous; abdomen short, ovate, shining, second and third segments yellow-ferruginous; petiole slender, as long as posterior coxæ and trochanters, black. Length .75 inch.

One specimen found on Sumach flowers in August. (Coll. G. W. Belfrage.) Closely resembles *Ammophila cementaria*, Smith, in general appearance, but more robust.

Sphex rufiventris, n. sp.

♀.—Deep velvety-black, with sparse black pubescence; head shining, mesothorax and scutellum closely and minutely punctured, the latter shining; metathorax transversely aciculated; wings fuscous, subviolaceous, second marginal cell narrower than usual, quadrangular; legs entirely black, tibiæ brown sericeous within; abdomen oblong-ovate, shining, smooth, entirely yellow-ferruginous, slightly obfuscated towards apex, petiole as long as posterior coxæ, black. Length .90 inch.

Two specimens found on Sumach flowers in August. (Belfrage; Heiligbrodt.) In general form and color this species closely resembles some ♀ varieties of *Priononyx Thomæ*, Fabr.

Sphex texana, n. sp.

♂ ♀.—Black, clothed with silvery pubescence; face and clypeus with dense pale golden pubescence, the clypeus of ♀ more or less denuded on apical middle; upper posterior margin of prothorax, the sides of mesothorax and postscutellum of ♂, tubercles, a spot behind, an oblique line on each extreme side of metathorax and a duplex spot at apex, all of dense silvery or pale golden pile; metathorax of ♂ with rather dense fine whitish sericeous pubescence, more obvious when viewed from behind; wings hyaline, apical margins dusky, darker in ♂; legs black, sericeous; abdomen elongate ovate, pale sericeous, especially in ♂, the first and second segments except apical margin of the latter, and sometimes a narrow interrupted band at base of third segment, orange-ferruginous; remainder black; petiole short, black. Length .85—.95 inch.

Five ♂ ♀ specimens. (Belfrage; Boll.) A very common species, found on Solidago flowers in September and October.

Sphex Belfragei, n. sp.

♂ ♀.—Black, with sparse black pubescence, more dense on head; clypeus subconvex, densely, rather coarsely punctured, with a small fovea near apical middle; prothorax subemarginate above; mesothorax shining, with a slight opaline iridescence, sparsely and finely punctured; scutellum shining, deeply impressed centrally; metathorax with a short dense, erect black pubescence, upper surface densely transversely striated; wings yellow-hyaline, subviolaceous, apical margins broadly fuliginous; legs black, tibiæ brown sericeous within; abdomen shaped much as in *texana*, yellow-ferruginous, shining, apex more or less obfuscated, sometimes blackish, petiole black. Length .75—.90 inch.

Four ♂ ♀ specimens found on Sumach flowers in August. (Belfrage.) This has the same form as *texana*, from which it is at once distinguished by the yellow wings and by the absence of all silvery markings.

Sphex lauta, n. sp.

♀.—Velvety-black, covered with a very fine pale golden sericeous pile, more obvious in certain lights; head with rather long golden pubescence; face, clypeus, spot on cheeks, upper posterior margin of prothorax, broad lateral margin of mesothorax, connected posteriorly by a narrow line, postscutellum, upper surface of metathorax entirely, an oblique line on each extreme side, the tubercles and a spot immediately behind, bright golden; tegulæ black; wings yellowish-hyaline, apical margin broadly fuliginous; legs black, with a pale sericeous pile, anterior femora beneath with a stripe of golden pubescence, tibiæ brown-sericeous within; abdomen elongate-ovate, fusco-ferruginous, pale sericeous in certain lights, petiole very short, stout, black, with pale golden pubescence. Length 1.—1.15 inch.

♀ var.—Abdomen entirely black.

Five specimens found on Sumach flowers in August. (Belfrage; Boll; Heiligbrodt.) This magnificent species closely resembles *Lanierii*, Guér., which, however, has red legs and paler abdomen.

Should the variety with black abdomen prove to be a distinct species, it may be named *illustris*.

Sphex ichneumonea.

Sphex ichneumonea, Linn. Syst. Nat. ii., p. 959.

Seven ♂ ♀ specimens. (Belfrage; Boll; Heiligbrodt.)

Sphex dubitata, n. sp.

♀.—Differs from *ichneumonea*, as follows;—Form more slender; the face, clypeus, sides of mesothorax, spot beneath tegulæ and metathorax clothed with dense silvery pile, instead of bright golden; the mandibles and scape entirely black; the wings pale yellowish-hyaline, with dusky apical margin, instead of uniformly fuscous; the coxæ with silvery pile; otherwise as in *ichneumonea*. Length .85 inch.

Three specimens. (Belfrage.)

Priononyx atrata.

Sphex atrata, St. Farg. Hym. iii., p. 355.

Three ♂ ♀ specimens. (Belfrage; Boll.)

Priononyx Thomæ.

Sphex Thomæ, Fabr. Ent. Syst. ii., p. 199.

One ♀, four ♂ specimens found abundantly on Sumach flowers in August. (Belfrage.) The abdomen of the ♀ specimen is entirely yellow-ferruginous, except petiole; while that of the ♂ specimens is more or less varied or banded with black; the ♂ specimens have also quite a dense clothing of silvery pubescence.

Priononyx brunnipes, n. sp.

♂.—Black, clothed with black pubescence, face and clypeus faintly silvery in certain lights; mandibles toward tips and scape beneath at tips dull reddish; thorax entirely black, without any silvery markings; metathorax opaque, upper surface sparsely and indistinctly punctured, with a very shallow longitudinal central depression, widened posteriorly, sides somewhat obliquely striated; tegulæ pale luteous on outer margin, base brown; wings fuscous; legs dark brown, coxæ and femora before black; abdomen shaped as in *Thomæ* ♂, dark brown, varied with black at apex, petiole black. Length .65 inch.

One specimen found on Sumach flowers in August. (Coll. G. W. Belfrage.) Very distinct from *Thomæ* by the total absence of silvery pubescence.

LARRIDÆ.

Larrada triloba.

Lyrops (*Lyroda*) *triloba*, Say, Bost. Journ. Nat. Hist. i., p. 372.

Two specimens. (Belfrage.)

Larrada subita.

Lyrops (*Lyroda*) *subita*, Say, Bost. Journ. Nat. Hist. i., p. 372.

One specimen. (Belfrage.)

Larrada americana, n. sp.

♂.—Blaek, opaque; head broad; face, occiput and cheeks with a dense bright silvery pile; the front, behind antennæ, shining, with a central rounded fovea and on each side a deep longitudinal furrow; clypeus closely and finely punctured, except apical margin which is smooth, polished and broadly rounded; vertex closely punctured, with a broad shallow depression around anterior ocellus and with a deep pit on each side, posterior ocelli indistinct, indicated by two small protuberances on a shining space, back of which is a large deep fovea; antennæ long, scape long, keeled beneath; thorax and scutellum densely and finely punctured; prothorax, sides of mesothorax, and pleura with silvery pile, more obvious in certain lights; metathorax long, abrupt laterally and at apex, opaque-black, densely and finely granulated, with dense silvery pile, more obvious at sides and apex; tegulæ shining, piceous-blaek; wings ample, uniform dark fuliginous, with a brilliant æneous or cupreous reflection, marginal cell abruptly truncate at tip; legs entirely blaek, with fine silvery pile; abdomen sericeous, all the segments, except the last, with an apical band of silvery pile, apex with brownish pile. Length .55 inch.

One specimen. (Belfrage.) This is also found in Pennsylvania, and is allied to *fuliginosa*, Dahlb.

Larrada vinulenta.

Larrada vinulenta, Cress. Proc. Ent. Soc. Phil. iv., p. 138.

One specimen. (Belfrage.)

Larrada argentata.

Larra argentata, Beauv. Ins. p. 119, pl. 3, fig. 9.

Eight specimens. (Belfrage; Boll.)

Larrada analis.

Larra analis, Fabr. Syst. Piez. p. 220.

One ♀ specimen. (Belfrage.)

Larrada terminata.

Larrada terminata, Smith, Brit. Mus. Cat. iv., p. 291.

Four specimens. (Belfrage.)

Larrada texana, n. sp.

♀.—Blaek, shining, finely punetured; face with silvery-white pubescence; clypeus with scattered punctures, transversely depressed near apex, which is truneate and broadly margined; mandibles red medially; behind anterior ocellus two small swellings, on the posterior part of which are placed two oblique polished spots and behind these a deep fovea; cheeks and occiput with silvery-pubeseenee; scape of antennæ short, with a reddish spot beneath; mesothorax and scutellum shining, finely and sparsely punctured; posterior margin of prothorax, sides of mesothorax and pleura with dull silvery pile; metathorax short, abrupt laterally and behind, opaque, with dense obscure silvery pile, upper surfaee very finely reticulated, with indistinct longitudinal striæ at extreme base, lateral declivity obliquely aeiculated; tegulæ pale rufo-testaceous, blaekish at base; wings hyaline, sometimes tinged with yellowish, marginal cell truncate at tip; legs blaek, with silvery pile, two apical joints

of tarsi honey-yellow; abdomen entirely pale ferruginous, with an indistinct silvery sericeous pile in fresh specimens. Length .40 inch.

♂.—Colored like the ♀, but is densely clothed with a bright silvery-pubescence; mandibles ferruginous; thorax less shining: mesothorax brilliantly silvery, the upper surface scarcely reticulated, except at base; abdomen with silvery bands. Length .30 inch.

Three specimens. (Belfrage.) Very near *tarsata*, Say, from which it differs by the minutely reticulated metathorax.

Larrada Belfragei, n. sp.

♀.—Black; face and clypeus bright silvery; clypeus depressed and shining at apex; mandibles dull reddish; back of head and cheeks with silvery-sericeous pile; scape reddish at tip beneath; posterior margin of prothorax, sides of metathorax and pleura with a silvery pile; metathorax above finely and densely rugulose with a few short radiating striæ at base, sides obliquely and minutely aciculate, posterior face transversely aciculate and with a deep central elongate fovea; tegulæ honey-yellow; wings hyaline, faintly tinged with dusky towards apex; legs fulvous, coxæ and base of femora black, tibiæ silvery sericeous; abdomen fulvo-ferruginous, with a very fine silvery sericeous pile, more dense at the sides and apex of segments, the three apical segments black. Length .40 inch.

One specimen. (Coll. G. W. Belfrage.) A very pretty species, resembling *Tachytes abdominalis* in the color of the body.

Tachytes distinctus.

Tachytes distinctus, Smith, Brit. Mus. Cat. iv., p. 307.

Three ♀ specimens. (Belfrage; Boll; Heiligbrodt.) The legs, except coxæ, are fulvous and the abdomen has only three silvery-sericeous bands.

The several species of *Tachytes* were found by Mr. Belfrage, in September, on flowers of Wild Sage (*Croton capitatum*).

Tachytes elongatus, n. sp.

♂.—Black; head and thorax clothed with a short pale sericeous pubescence, silvery when viewed in certain lights; face and clypeus clothed with a dense pale golden pubescence; mandibles piceous at tips, yellowish at base and reddish before tips; the flattened prominence above anterior ocellus clothed with dense pale pubescence, between the summit of eyes a central channel; scape of antennæ short, with long pale hairs; posterior margin of prothorax silvery; mesothorax and scutellum closely and feebly punctured, clothed with a short erect sericeous pubescence, more dense and somewhat silvery on lateral and posterior margins of mesothorax and on postscutellum; metathorax without distinct punctures, clothed with a whitish pubescence, somewhat silvery in certain lights, a deep shining fovea at apex above and medial channel on posterior face widened above; pleura clothed with a pale silky pile; tegulæ pale testaceous; wings yellow hyaline, paler towards apex, apical margin, darker beneath tip of marginal cell, dusky; legs fulvous, with silvery sericeous pile, coxæ, trochanters and femora except tips, black; abdomen deep

velvety-black, basal segment with a long thin white pubescence, apex of segments 1—4 with a band of dense silvery-sericeous pile, segments 5 and 6 entirely black; apical segment bright silvery. Length .55—.65 inch.

Ten specimens. (Belfrage; Boll.) This may be the ♂ of *distinctus*, Smith.

Tachytes validus, n. sp.

♀.—Robust, black; face and clypeus with dense pale golden pubescence; vertex as in *elongatus;* back of head with short pale golden pile, long and silvery on cheeks beneath; middle of mandibles reddish; antennæ as in preceding species; thorax clothed with a dense dull golden pubescence, more dense on sides of mesothorax and longer and paler on metathorax; prothorax with bright silvery pile in certain lights; posterior face of metathorax with a deep central channel, not reaching apex; scutellum with shallow depression on disk; tegulæ dull fulvous; wings pale yellowish-hyaline, paler at apex; legs with golden pubescence, black, tibiæ and tarsi fulvous, sometimes the femora are more or less tinged with fulvous; abdomen black, basal segment with a pale silky pubescence; apex of segments 1—4 with a silvery sericeous band, apical segment bright golden. Length .70 inch.

♂.—Very much like *elongatus*, differing by the metathorax being densely clothed with a pale golden pubescence and by the wings not being margined at apex with dusky; the form is also much more robust in every way, the abdomen being wider and somewhat flattened above, while that of *elongatus* is narrow and convex. Length .65 inch.

Three specimens. (Belfrage.) More robust than *distinctus*, Smith, from which it may be distinguished by the pubescence of the thorax being much more dense, by the wings not being margined at apex with dusky, and by the abdomen having four silvery sericeous bands instead of three.

Three ♂ specimens (which I had labelled *breviventris*) differs only by the abdomen being short and subconvex and the femora fulvous at tips. Length .55 inch.

Tachytes sericatus, n. sp.

♀.—Black; face, clypeus, back of head, posterior margin of prothorax, mesothorax, especially at sides and behind, postscutellum, metathorax and pleura, clothed with a very short, fine silvery sericeous pile, very brilliant in certain lights; clypeus broadly and deeply margined at apex; vertex sculptured as in *elongatus;* metathorax with a small fovea on apex above and a deep channel on middle of posterior face, not reaching apex; tegulæ dull luteous; wings hyaline, tinged with yellowish toward base; legs black, with a silvery pile, especially dense on tibiæ; abdomen strongly silvery sericeous and when viewed obliquely from behind segments 1—4 have each a bright silvery band at apex; apical segment dull silvery. Length .60 inch.

♂.—More slender than ♀, the body less brilliantly sericeous, the wings clear hyaline and the apical segment of abdomen bright silvery. Length .50 inch.

Two ♂ ♀ specimens. (Belfrage.)

Tachytes obscurus, n. sp.

♀.—Black; face and clypeus clothed with a dense silvery pubescence; prominence above lower ocellus divided centrally by an impressed line, and behind it a lunate excavation or depression; back of head and cheeks with a silvery sericeous pile; posterior margin of prothorax silvery; lateral and posterior margins of mesothorax, pleura and metathorax with a silvery sericeous pubescence, longer on metathorax, which has a small fovea at apex above and a central groove on posterior face; tegulæ dull testaceous; wings hyaline, faintly dusky at apex; legs black, tibiæ and tarsi silvery sericeous; abdomen black, smooth and shining, more or less sericeous, base of first segment with a rather long, thin white pubescence, lateral apical margins of segments 1—3 more or less silvery sericeous, apical segment with dense golden pubescence. Length .55 inch.

Three specimens. (Belfrage.) Easily distinguished from the other species by the apical segment of abdomen only being golden, the clothing of the remainder of body having a silvery lustre.

Tachytes texanus, n. sp.

♁.—Black, clothed with an erect white pubescence, face and clypeus densely silvery; vertex as in *obscurus;* mesothorax and scutellum finely and distinctly punctured, lateral and posterior margins and posterior margin of prothorax more or less silvery in certain lights; metathorax with long white pubescence, a smooth shining shallow fovea on apex above and a short deep fissure on upper half of posterior face; tegulæ dull luteous, obscure at base; wings hyaline; legs black, with a silvery sericeous pile, especially dense on tibiæ, apical joints of tarsi more or less fulvous; abdomen convex, with a thin glittering pile, segments 1—4 each with a silvery sericeous band on apical margin more or less interrupted medially; apical segment bright silvery Length .40—.45 inch.

Five specimens. (Belfrage; Boll.) This is our smallest species.

Tachytes abdominalis.

Larra abdominalis, Say, West. Quar. Rep. ii., p. 77.

Six ♀ specimens. (Belfrage; Boll.)

Tachytes rufo-fasciata, n. sp.

♁.—Black; face, clypeus, posterior margin of prothorax, lateral and posterior margins of mesothorax, postscutellum, sides of metathorax and pleura more or less, silvery; mandibles yellow-ferruginous, rufo-piceous at tips; vertex as in *obscurus;* metathorax sculptured as in *texanus;* tegulæ luteous; wings subhyaline, stained along the nervures with yellowish, nervures honey-yellow; legs fulvous, coxæ black, tibiæ silvery sericeous; abdomen black, basal segment with a silvery sericeous pile; narrow apical margin of first segment and second segment except basal margin reddish-fulvous, apical margin of remaining segments pale testaceous, apical segment silvery. Length .45 inch.

One specimen. (Coll. G. W. Belfrage.) May be the ♁ of *abdominalis,* Say, although the legs are fulvous.

Astata unicolor.

Astata unicolor, Say, Long's 2d Exped. ii., p. 337.

Two ♂ ♀ specimens. (Belfrage.)

Astata rufiventris, n. sp.

♀.—Black, shining; head closely punctured, with a silvery white pubescence, most dense on face and cheeks; middle of clypeus with some black pubescence; mesothorax shining, with close distinct punctures, sparse on the disk; scutellum smooth, polished, impunctured on the disk; metathorax coarsely reticulated above, sides with long white pubescence, posterior face rugose, with a deep central fovea; pleura densely punctured, with long white pubescence; tegulæ black, polished; wings hyaline, apical margin broadly fuliginous; legs black, with pale glittering hairs; abdomen smooth, shining, entirely rufo-sanguineous. Length .50 inch.

One specimen. (Coll. G. W. Belfrage.)

Astata bicolor.

Astata bicolor, Say, West. Quar. Rep. ii., p. 78.

One ♀ specimen. (Belfrage.)

Astata terminata, n. sp.

♂.—Black; face and cheeks with long silvery-white pubescence; antennæ long, slender; mesothorax shining, closely punctured, slightly depressed on each side of disk and with a longitudinally impressed line on each side over tegulæ; sides of mesothorax anteriorly, pleura and metathorax with rather dense white pubescence, silvery in certain lights; scutellum smooth and polished; metathorax rather finely reticulated above, with a broad shallow depression on apical middle, posterior face with a large deep shining fovea near upper edge; tegulæ shining black; wings hyaline; legs with thin white pubescence; abdomen bright fulvo-ferruginous, a spot at base of first segment, which is deeply and broadly excavated, most of fourth segment and the following segments entirely, black. Length .42 inch.

One specimen. (Coll. G. W. Belfrage.)

BEMBICIDÆ.

Bembex nubilipennis, n. sp.

♀.—Black, clothed with a fine white pubescence, having a beautiful silky lustre in certain lights; sides of face confluent with a spot between antennæ, spot before ocelli, posterior orbits, clypeus, labrum, mandibles except tips and scape beneath, bright lemon-yellow; prothorax yellow, with a large irregular black spot on middle, sometimes black with only the sides irregularly yellow; mesothorax black, with a yellow line over tegulæ and sometimes two short, slender discal yellow lines; scutellum black with a broad posterior yellow band, sometimes much narrowed centrally; postscutellum with a slender transverse yellow line; metathorax generally yellow with a large angular black line and an arcuate black line at basal margin, sometimes black, with lateral angles and two spots or an arcuate band on disk, yellow; pleura black with two or three irregular yellow spots beneath wings; tegulæ yellow, pupilled with fuscous; wings hyaline, the basal two-thirds more or less clouded

with yellowish-fuscous; legs yellow, coxæ and base of femora black; first segment of abdomen black with a large subovate yellow spot on each side, sometimes meeting on the disk and forming a broad band, sometimes the segment is yellow, with only basal and apical margins black; segments 2—5 each with a broad yellow band almost covering the segment, that of second segment generally enclosing two transverse black spots near base, those on the following segments more or less deeply indented with black on each side of basal middle, the basal and apical middle more or less emarginate with black; apical segment black, densely punctured; apical segments more or less clothed with black pubescence, shining black, segments 2—4 each with a yellow lateral spot. Length .75 inch.

♂.—Thorax generally black, immaculate except a line on pleura anteriorly covering the tubercles, sometimes the sides of prothorax and a line over tegulæ are yellow; one specimen has a spot on each side of scutellum and a slender line on postscutellum yellow and the metathorax marked as in ♀, and another specimen has only a yellow spot on each lateral angle of metathorax; wings generally entirely hyaline, sometimes there is a faint fuscous cloud towards base; the yellow bands on abdomen are narrower than in ♀, with the emarginations larger and deeper, giving the bands a biundulate appearance; second ventral segment with a large hooked process on basal middle, very robust and broad at base and slender and acute at tip, this process is sometimes much reduced and in one specimen it is indicated merely by a slightly raised line; apical segment with a process shaped much like that on second segment, but smaller, and with a prominent carina on each side. Length .65—.80 inch.

Fifteen ♂ ♀ specimens. (Belfrage; Boll; Heiligbrodt.) A very handsome and rather variable species, the ♀ being easily recognized by the conspicuously clouded wings, which in the ♂ are generally hyaline.

Bembex texana, n. sp.

♀.—Black, head, thorax and base of abdomen clothed with a fine white pubescence; anterior orbits not reaching summit of eyes, posterior orbits, spot between antennæ, clypeus except two connected black spots at base, labrum and mandibles except tips, white; scape white beneath; thorax rather closely and delicately punctured; narrow posterior and and lateral margins of prothorax, covering tubercles, a large spot on each side, a short transverse line beneath wings, and a small spot on each lateral angle of metathorax, white; anterior half of tegulæ white; wings hyaline; legs white, with a slight yellowish tinge, coxæ, femora except more or less of tips, a stripe on all the tibiæ within and on outer side of anterior pair, black; abdomen black, shining, a large transverse white spot on each side of first segment, a broad white band on middle of second segment deeply notched on anterior and posterior middle and enclosing two transverse black spots on each side of disk, and a biundulate white band on third, fourth and fifth segments, dilated laterally and deeply indented with black on each side of anterior middle; apical segment entirely black, densely punctured; venter shining black, the segments, except the last, with a small white spot on each apical corner. Length .75 inch.

Two specimens. (Boll.) Resembles *Sayi* in the markings of the

abdomen, but easily separated by the two black spots at base of clypeus.

Bembex Sayi.

Bembex Sayi, Cress. Proc. Ent. Soc. Phil. iv., p. 467.

One ♀ specimen. (Belfrage.)

Bembex Belfragei, n. sp.

♂.—Deep black, shining, head and thorax clothed with a fine, rather dense pale silky down; clypeus and labrum sometimes entirely black, sometimes the former is entirely yellow or a yellowish-white spot on each side, and the labrum sometimes yellow with the apex and central line, not reaching base, black; generally the anterior and posterior orbits are narrowly yellowish; mandibles more or less white on outer side, tips piceous; antennæ generally entirely black, only one specimen has the scape white beneath; thorax entirely black, except sometimes a line on lateral posterior margin of prothorax curving around tubercles; metathorax very short and flat behind; tegulæ black; wings hyaline, narrow; legs dull yellowish-white, coxæ and femora except tips and a line on upper anterior edge, black; abdomen robust, first segment with a large dull yellowish-white transverse spot on each side, more or less narrowed within; second and third segments each with a transverse band of same color, broad laterally and suddenly narrowed on the lateral anterior middle, and slightly interrupted on the disk; two or three following segments each with a narrow undulate band also slightly interrupted medially; ventral segments with spot on each side, the second with a large flattened, more or less hooked process, the terminal segment raised transversely with posterior edge carinate and sometimes dentate, Length .75 inch.

Five specimens. (Belfrage.) A very distinct species.

Bembex monodonta.

Bembex monodonta, Say, Long's 2d Exped. ii., p. 335.

One ♀ specimen. (Belfrage.)

Monedula carolina.

Bembex carolina, Fabr. Ent. Syst. ii., p. 249.

Three ♂ specimens. (Boll; Heiligbrodt.)

Monedula 4-fasciata.

Monedula 4-fasciata, Say, Long's 2d Exped. ii., p. 336.

Seven ♂ ♀ specimens. (Belfrage, Boll; Heiligbrodt.)

Monedula ventralis.

Monedula ventralis, Say, Long's 2d Exped. ii., p. 337.

Fourteen ♂ ♀ specimens. (Belfrage.) The clypeus and mandibles vary from entirely black to entirely yellow; the mesothorax has sometimes two short yellow discal lines; the two spots on scutellum are sometimes confluent, forming a broad band; the prominent angles of metathorax more ar less broadly yellow, and in some specimens there is an arcuate yellow line on upper middle, reaching from base of

wings to the verge of the broadly concave posterior face, sometimes this line is broken into spots; the legs vary considerably in color, the femora being sometimes black, sometimes fulvous, sometimes yellow, with black stripe above, the tibiæ and tarsi vary from yellow to fulvous; the bands of abdomen vary much in width, in some specimens being twice as broad as the others, all are slightly interrupted medially. Length .55—.70 inch.

Monedula formosa, n. sp.

♀.—Black, with a very short white silky down; face and clypeus silvery when viewed from above; face yellowish-white, an angular yellow line immediately before ocelli; posterior orbits gradually broader beneath, yellowish-white; clypeus and labrum white; mandibles yellow, black at tips; antennæ black, two basal joints entirely and the third joint at base and beneath lemon-yellow; prothorax bright yellow, a narrow black band on anterior middle; a large U-shaped mark on mesothorax, line over tegulæ, posterior margin of scutellum, postscutellum, the metathorax, except a large angular black line on posterior face and an arcuate narrow black band at base, tubercles, pleura except two black spots beneath between four anterior legs, and the tegulæ anteriorly bright lemon-yellow; metathorax flattened behind, slightly concave, lateral angles not prominent; wings short, narrow, hyaline; legs pale lemon-yellow, a black line on all the femora above; abdomen with a lemon-yellow band on all the segments except the last, that on first segment broad, undulate on posterior margin and deep and roundly notched on anterior middle; that on second segment also broad, sometimes enclosing two transverse black spots which, in one specimen, are confluent and connected with the black at base by the central emargination; those on the three following segments narrow and biemarginate on each side of anterior middle; apical segment with a large yellow spot; venter black, shining, with a yellow spot on each side of segments 2—5, those on second segment large and connected by narrow line on apical margin, those on third and fourth segments also sometimes connected in same way. Length .75 inch.

♂.—Clypeus and labrum pale lemon-yellow; the angular line beneath ocelli connected with the yellow on the face by a slender line; second and third joints of antennæ black above; prothorax with a very large black spot on anterior middle; mesothorax black with only a narrow yellow line over tegulæ; band on scutellum narrow, dilated laterally; angular black line on metathorax much broader, sometimes the metathorax is black, with the lateral angles and a very narrow arcuate line towards base, yellow; a black line behind tubercles; line on femora above and tips of tarsi blackish; bands of abdomen narrower than in ♀, that on first segment slightly interrupted on the disk, those on remaining segments undulate posteriorly and broadly, squarely and sometimes obliquely emarginate, or biemarginate on anterior middle; first ventral segment yellow, sides of second and third rather broadly yellow; otherwise as in ♀. Length .75 inch.

Six specimens. (Belfrage; Boll; Heiligbrodt.) In the markings of thorax the ♀ closely resembles those of *speciosa*, Cress.

Monedula pictifrons.

Monedula pictifrons, Smith Brit. Mus. Cat. iv., p. 335.

Two ♂ ♀ specimens. (Belfrage.) The ♂ has much less yellow than the ♀ and the color is paler; all the markings are much reduced and the band on abdomen broken on each side of middle.

Monedula neglecta. n. sp.

♀.—Black, the entire body thinly clothed with a short pale pubescence; face, anterior orbits, lower posterior orbits, clypeus, labrum, mandibles except tips, palpi, antennæ beneath, narrow posterior margin of prothorax, tubercles, spot beneath wings, line over tegulæ, spot on each side of scutellum, band on postscutellum, spot on the prominent lateral angles of metathorax, coxæ and femora beneath, most of tibiæ and tarsi, and apical fascia on all dorsal abdominal segments except the last, those on segments 2—5 broadly and squarely emarginate anteriorly, all lemon-yellow, the fasciæ on abdomen obscure in color; tegulæ dull testaceous; wings hyaline; all the femora above and behind, and spot on tibiæ behind near tips, black, tarsi tinged with fulvous; abdomen sparsely punctured. Length .48 inch.

One specimen from Comal Co.

NYSSONIDÆ.

Stizus speciosus.

Sphex speciosus, Drury, Exot. Ins. ii., 71, pl. 38, fig. 1, ♀.

Four ♂ ♀ specimens. (Belfrage; Boll; Heiligbrodt.)

Stizus texanus. n. sp.

♂ ♀.—Black, clothed with a dense, pale sericeous pile; anterior orbits, large spot on middle of face, clypeus and labrum pale yellow, with a dense silvery pile; upper anterior orbits, posterior orbits, mandibles except tips and the three basal joints of antennæ, ferruginous, scape yellow beneath in ♂; prothorax ferruginous, upper posterior margin and most of tubercles pale yellow; rather broad lateral margin of mesothorax, tegulæ, scutellum and postscutellum of ♂, ferruginous or brown, scutellum and postscutellum of ♀ yellow, the former sometimes interrupted with ferruginous at base; metathorax sometimes tinged with ferruginous, generally entirely black; wings not reaching beyond tip of abdomen, strongly stained with fuscous, yellowish towards base; legs entirely ferruginous, sericeous; abdomen more or less ferruginous at base of first and sometimes the second segment, the four basal segments each with a large pale yellow lateral spot, rounded on the first and second segments and ovate on the two following, that on the fourth narrower and longer, sometimes almost meeting on the disk, sometimes the fifth segment of ♂ has a lateral spot or line; venter tinged laterally and at apex with ferruginous, the third and fourth segments each with a round pale yellow lateral spot, sometimes much reduced and subobsolete. Length 1.15—1.20.

Four ♂ ♀ specimens. (Boll.) A very distinct species.

Stizus fervidus, n. sp.

♀.—Fulvo-ferruginous, head and thorax clothed with a short golden-fulvous pubescence, more long and dense on metathorax; face, line on anterior orbits as far up as ocelli, clypeus and labrum, pale yellow, middle of clypeus tinged with fulvous, the sides clothed with a silvery white pile; mandibles long, black, fulvous at base; antennæ black, three basal joints ferruginous; narrow posterior margin of prothorax and tubercles yellow; anterior margin of mesothorax and a line over tegulæ fuscous; mesothorax, scutellum and pleura closely and finely punctured, shining, metathorax more densely punctured, the base with a central impressed line; wings hyaline, yellow at base and in base of marginal cell, rest of marginal cell fuliginous; legs ferruginous, tarsi paler; abdomen shining, sparsely punctured, fulvo-ferruginous, segments 1—5 each with a lemon-yellow band, that on first segment broad, slightly interrupted at the middle and indented on each side anteriorly, that on second segment broader, deeply and roundly emarginate on each lateral anterior corner and slightly indented on anterior middle, and with a short narrow transverse fulvous line on each side near apex, three following segments each with the band continuous and enclosing on each side near apex a fulvous spot; apical segment densely punctured, carinate on each side, the carinæ meeting at apex; second ventral segment with a large yellow spot on each side. Length .95 inch.

One specimen. (Heiligbrodt.) This fine species resembles *grandis*, Say, in color, but is at least one-half smaller and otherwise distinct.

Larra unicincta.

Stizus unicincta, Say, West. Quar. Rep. ii., p. 77; Am. Ent. pl. 2.

Two specimens. (Belfrage.)

Nysson aurinotatus.

Nysson aurinotatus, Say, Bost. Journ. Nat. Hist. i., p. 368.

Three ♀ specimens. (Belfrage; Boll.)

Nysson texanus, n. sp.

♀.—Black, opaque; head closely punctured, clothed with a fine appressed golden pile, very dense on each side of front and a line across it; clypeus with dense pale golden pile; labrum testaceous; mandibles more or less tinged with ferruginous; antennæ black, sericeous, apex of scape beneath pale ferruginous; thorax closely or rather coarsely punctured, clothed with a very fine pale golden pile, which is silvery on the pleura and metathorax laterally and bright silvery on pleura beneath and coxæ; posterior margin of prothorax, continued around the tubercles, a band at base of scutellum, lateral angles of metathorax and a spot beneath tegulæ, immediately in front of a small, but prominent tubercle, all bright golden; mesothorax with a well-impressed central longitudinal line not reaching beyond the disk; scutelium rugose, sides carinate and somewhat reflexed, as also the postscutellum which is bilobate; lateral spine of metathorax long and subacute, tipped with pale yellow; tegulæ ferruginous; wings smoky, darker in marginal cell and at extreme tip; legs ferruginous, with pale sericeous pile; abdomen pale golden sericeous, not densely punctured, a broad band of dense golden pile near base of first segment; a transverse ovate spot on each side at apex of first segment, a short

narrow line on each side at apex of second and third segments and narrow apical margin of all the segments except the last, pale yellow; sometimes the spots and lines are dull yellow, while the narrow well-defined margins are bright golden. Length .30—.45 inch.

♂.—Has the sides of the face and clypeus bright silvery; the coxæ, trochanters and femora except tips sometimes blackish; the fourth and sometimes the sixth abdominal segments above with a lateral apical pale yellow spot; tip of apical segment with four teeth, the lateral ones very short. Lenght .30—.45 inch.

Six specimens. (Belfrage; Boll.) Closely allied to *aurinotatus*, Say.

Nysson? inerme, n. sp.

♀.—Black, sides of face, clypeus and cheeks bright silvery, tip of clypeus polished; mandibles slender, acute, whitish, tips black; head slightly broader than thorax, transverse, a double prominence on middle of the front just above antennæ, which are inserted close to base of clypeus and are short and robust; ocelli arranged in a triangle; thorax shining, feebly punctured; a line on prothorax above, slightly interrupted medially, tubercles, tegulæ and band on postscutellum, white; metathorax opaque, finely granulated, rounded, unarmed, covered laterally with a silvery sericeous pile; wings hyaline, dusky on apical margin; marginal cell long, sublanceolate, blunt at tip, first submarginal cell long, large, broader than in *Nysson*, receiving the first recurrent nervure at its extreme apex, second submarginal small, subtriangular, petiolated, receiving the second recurrent nervure, which is very much bent outwardly, at about the middle, third submarginal obliquely subquadrate, as in *Harpactus;* legs short, slender, apical half of four anterior femora beneath, and a line on all the tibiæ behind, whitish; tarsi brownish; abdomen subsessile, convex, shining, apex acuminate, second and third segments contracted at base, first segment prominently convex above, the following segments covered with a silvery sericeous pile, especially on the sides, only visible when viewed in certain lights; ovipositor exserted; second ventral segment not protuberant. Length .23 inch.

One specimen. (Coll. G. W. Belfrage.) Seems intermediate between *Harpactus* and *Nysson*.

Gorytes Belfragei, n. sp.

♀.—Black, with a silvery sericeous pile; eyes very large, face very narrow, pale yellow, as well as the clypeus and narrow anterior orbits; labrum and mandibles toward base, pale ferruginous; antennæ black, scape lemon-yellow, base of flagellum tinged with ferruginous, the apical joint yellow; mesothorax with large punctures, sparse on the disk; upper posterior margin of prothorax, tubercles, lateral margin of mesothorax, two spots on scutellum, nearly confluent at base, postscutellum, dot on tegulæ and a spot beneath, lemon-yellow; basal space of metathorax minutely punctured; wings hyaline, second cubital cell receiving one recurrent nervure at the middle and the other near apex; third cubital as long as the first, narrowed almost one-half towards base above; legs ferruginous, the anterior pair and the outer edge of four posterior tibiæ, pale yellow; posterior tarsi twice the length of their

tibiæ; abdomen elongate, not much narrowed at base which is dull ferruginous, minutely and sparsely punctured, segments 1—5 each with an apical lemon-yellow band, broadly dilated laterally on second and third segments and indented on each side of middle of segments 2—4; second and third ventral segments with a triangular yellow spot on each lateral apical corner. Length .50 inch.

One specimen. (Coll. G. W. Belfrage.) Larger than *moneduloides*, Pack., which it resembles.

Gorytes costalis, n. sp.

♀.—Black, subsericeous; face broad; broad anterior orbits, narrow line on posterior orbits, anterior margin of the broad transverse clypeus, spot on mandibles, scape beneath, upper posterior margin of prothorax, tubercles, transverse spot beneath tegulæ, spot on lateral margin of mesothorax over tegulæ, broad band on apex of scutellum, tip of anterior femora, the two posterior pair beneath, all the tibiæ in front, apical margins of abdominal segments 1—5, all lemon-yellow; antennæ with joints 2—6 pale ferruginous beneath; mesothorax, pleura and scutellum with large scattered punctures; metathorax with large, rather dense punctures, the basal triangular space with radiating carinæ; tegulæ fuscous; wings hyaline, the costa broadly fuliginous almost to apex, second cubital cell receiving the two recurreut nervures, which are approximated, between middle and apex, third cubital obliquely quadrate, very little narrowed above; tibiæ behind and the tarsi ferruginous, posterior tarsi not much longer than their tibiæ; abdomen ovate, convex, much narrowed at base, covered with deep punctures, more coarse and dense on apical segments; second ventral segment convex, coarsely punctured, and with an apical lateral yellow spot. Length .45 inch.

One specimen. (Boll. Coll. Mus. Comp. Zoology.)

Gorytes Bollii, n. sp.

♀.—Black, shining, densely and finely punctured, clothed with a fine pale sericeous pile, rather long on face, cheeks, pleura and metathorax; face broad; two spots on clypeus, scape beneath, upper posterior margin of prothorax, tubercles, spot beneath tegulæ, short line on each side of mesothorax over tegulæ, postscutellum, and narrow apical margins of abdominal segments 1—3, dilated laterally, lemon-yellow; joints 2—4 of antennæ beneath, tegulæ and legs, except coxæ, ferruginous; postscutellum protuberant; mesothorax strongly punctured; metathorax minutely punctured, pubescent, the basal space with a crenulated central longitudinal groove, and coarsely striated on posterior margin; wings dusky hyaline, radial cell fuliginous, second cubital cell broad, receiving the recurrent nervures, which are distant, one before the middle and the other near apex, third cubital narrower than usual, obliquely quadrangular; abdomen ovate, convex, much narrowed at base, very minutely punctured; second ventral segment convex, with large deep scattered punctures and a small yellow lateral apical spot. Length .35 inch.

One specimen. (Boll. Coll. Mus. Comp. Zoology.)

Alyson texanus, n. sp.

♂.—Black, shining, clothed with a pale subsericeous pubescence; face silvery; tips of mandibles ferruginous; scape whitish beneath, flagellum ferruginous beneath, apical joint curved and hooked; metathorax elongate, truncate behind, with lateral angles prominent, basal enclosed space elongate and rugose, on each side of space the surface is transversely striated to lateral declivity; tegulæ brown; wings hyaline, apex dusky, a faint cloud beneath tip of stigma; four anterior tibiæ and the posterior pair slightly at base, ferruginous; abdomen smooth, shining, the first segment, except base, and the second entirely rufo-ferruginous; apex with two long slender setæ. Length .25 inch.

One specimen. (Coll. G. W. Belfrage.)

CRABRONIDÆ.

Trypoxylon politum.

Trypoxylon politus, Say, Bost. Journ. Nat. Hist. i., p. 373.

Four ♂ ♀ specimens. (Boll; Heiligbrodt.)

Trypoxylon clavatum.

Trypoxylon clavatus, Say, Bost. Journ. Nat. Hist. i., p. 374.

Two specimens. (Boll.)

Trypoxylon frigidum.

Trypoxylon frigidum, Smith, Brit. Mus. Cat. iv., p. 380.

One ♂ specimen. (Belfrage.)

Trypoxylon texense.

Trypoxylon texense, Sauss. Hymen. Novara-Exped. p. 77.

Ten ♂ ♀ specimens. (Belfrage; Heiligbrodt.)

Trypoxylon tridentatum.

Trypoxylon tridentatum, Pack. Proc. Ent. Soc. Phil. vi., p. 417.

Five ♂ ♀ specimens. (Belfrage.)

Oxybelus lætus.

Oxybelus lætus, Say, Bost. Journ. Nat. Hist. i., p. 375.

Two specimens. (Belfrage.)

Oxybelus emarginatus.

Oxybelus emarginatus, Say, Bost. Journ. Nat. Hist. i., p. 375.

Two specimens. (Belfrage.)

Crabro 10-maculatus.

Crabro 10-*maculatus,* Say, West. Quar. Rep. ii. p. 78.

Seven ♂ ♀ specimens. (Belfrage; Boll.)

Crabro rufifemur.

Crabro rufifemur, Pack. Proc. Ent. Soc. Phil. vi., p. 81.

One specimen. (Belfrage.)

Crabro texanus, n. sp.

♀.—Black; head very large, quadrate, densely punctured, clypeus and cheeks bright silvery, anterior orbits pale golden; mandibles except tips and scape lemon-yellow; thorax densely and coarsely punctured, upper posterior margin of prothorax, tubercles, spot behind, scutellum and postscutellum lemon-yellow; metathorax with a central longitudinal carina; tegulæ ferruginous; wings pale fuscous, the costa beyond stigma fuliginous; tips of femora, all the tibiæ and tarsi yellow, the latter tinged with ferruginous; abdomen densely punctured, a broad band near base of second segment, a narrow one on middle of fourth and a broad one on middle of fifth, lemon-yellow, terminal segment with two carina converging at tip which is acute; venter immaculate. Length .30 inch.

Three specimens. (Belfrage.)

Passalœcus annulatus.

Pemphredon annulatus, Say, Bost. Journ. Nat. Hist. i., p. 379.

One specimen. (Belfrage.)

Mimesa tibialis, n. sp.

♂ ♀.—Black, shining, clothed with a short silvery-white pubescence; face densely silvery; middle of mandibles and flagellum beneath and at tips pale ferruginous; thorax rather sparsely punctured; tubercles yellowish; metathorax reticulated, coarsely so at base; tegulæ testaceous; wings hyaline, iridescent; knees, four anterior tibiæ, posterior pair at base and all the tarsi pale yellowish or whitish, apex of posterior tibiæ of ♀ sometimes ferruginous; abdomen smooth, shining, subiridescent, slender in ♂, apex of segments obsoletely dull testaceous, petiole not as long as the dilated portion of the segment. Length .27 inch.

Four specimens. (Belfrage.)

Mimesa pauper.

Mimesa pauper, Pack. Proc. Ent. Soc. Phil. vi., p. 409.

One ♀ specimen. (Belfrage.)

Philanthus ventilabris.

Philanthus ventilabris, Fabr. Ent. Syst. Suppl. p. 268.

Seven ♂ ♀ specimens. (Belfrage.)

Philanthus punctatus.

Philanthus punctatus, Say, Long's 2d Exped. ii. p. 342.

Two ♂ ♀ specimens. (Belfrage.)

Eucerceris zonatus.

Philanthus zonatus, Say, West. Quar. Rep. ii., p. 79; Am. Ent. pl. 49.

One specimen. (Belfrage.)

Cerceris fumipennis.

Cerceris fumipennis, Say, Bost. Journ. Nat. Hist. i., p. 381.

Two ♀ specimens. (Boll.)

Cerceris bicornuta.

Cerceris bicornuta, Guér. Icon. Règ. Anim. p. 443.

Three ♀ specimens. (Belfrage.)

Cerceris venator.

Cerceris venator, Cress. Proc. Ent. Soc. Phil. v., p. 116.

Six ♂ specimens. (Belfrage; Boll.) This species varies much in color, especially of abdomen. The apical joint of antennæ is almost as long as the third, curved, with truncated tip and always black; the basal joint of posterior tarsi is curved or sinuated, slender at base and dilated at apex. It may prove to be the male of *bicornuta*.

Cerceris mimica, n. sp.

♀.—Ferruginous or brown-ferruginous; sides of face, middle and sides of clypeus, more or less yellow, sometimes obscure; two spots behind antennæ, spot covering ocelli and tips of mandibles black; head with dense pale golden pubescence, longer on face and cheeks; apex of clypeus with three small obtuse black teeth; antennæ ferruginous, apical half black; two transverse spots on prothorax above, sometimes a band on scutellum, postscutellum and tegulæ, yellow, sometimes obscure; narrow anterior margin of mesothorax and pleura beneath black; thorax clothed with rather dense short golden sericeous pubescence; metathorax coarsely punctured, basal triangular space punctured laterally; wings subhyaline, costa and apical margins fuliginous, costal nerve and stigma honey-yellow; legs ferruginous, tibiæ and tarsi yellow; abdomen ferruginous, closely and coarsely punctured, first segment transverscly subglobose, with a yellow lateral dot; second segment yellow, with basal margin, dilated medially, ferruginous; three following segments with an apical yellow band, suddenly dilated laterally, narrow medially and slightly interrupted; sixth segment with enclosed space bounded by a sharp carina which is fringed with rather long golden hair; venter ferruginous, immaculate. Length .65 inch.

♂.—Black, clothed with a rather dense, long whitish pubescence; all beneath antennæ, two spots on prothorax above, postscutellum, sometimes band on scutellum and tegulæ, lemon-yellow; tips of mandibles black; antennæ ferruginous, apical half black, terminal joint not longer than the preceding joint, slightly bent and truncate at tip, scape sometimes varied with black; tubercles, sometimes two spots on scutellum and occasionally the sides of metathorax, ferruginous; wings paler than in ♀; legs ferruginous, anterior femora more or less black, four posterior coxæ and trochanters beneath, four anterior tibiæ and tarsi, inner edge of posterior tibiæ and their tarsi, lemon-yellow; basal joint of posterior tarsi straight, not dilated at apex; abdomen coarsely punctured, first two segments occasionally ferruginous; first segment subglobose, immaculate; four following segments each with a narrow yellow apical band rather broadly dilated laterally, broader on second segment; sixth segment with a lateral yellow spot; apical segment more or less ferruginous, truncate at tip; venter ferruginous, immaculate. Length .60—.65 inch.

Seven ♂ ♀ specimens. (Belfrage; Boll.) The ♂ closely resembles that of *venator*, but may be separated at once by the *short* slightly curved terminal joint of antennæ and by the straight, linear basal joint of posterior tarsi.

Cerceris clypeata.

Cerceris clypeata, Dahlb. Hym. Eur. i., p. 221.

One ♂ specimen. (Belfrage.)

Cerceris occipitomaculata.

Cerceris occipitomaculata, Pack. Proc. Ent. Soc. Phil. vi., p. 62.

One ♀ specimen. (Belfrage.)

Cerceris gnara, n. sp.

♂.—Black, clothed with a rather dense pale sericeous pubescence; face, orbits each side of antennæ, clypeus, mandibles except tips, scape beneath, two spots on prothorax above, postscutellum, and dot on tegulæ anteriorly, lemon-yellow; face coarsely punctured, apex of clypeus with three prominent obtuse, black teeth; flagellum fulvous beneath, apical joint as long as the preceding, curved and truncate at tip; basal space of metathorax smooth and polished; wings subhyaline, apical margin fuliginous; legs rufo-ferruginous, coxæ, spot on posterior femora beneath and apex of their flat tibiæ, black; trochanters, intermediate tibiæ and tarsi, apex of four anterior femora at tip beneath, base of posterior femora and their tibiæ except apex, lemon-yellow; posterior tarsi dusky; abdomen densely punctured; a small spot on each side of first segment, and a broad slightly interrupted band on second, and a very narrow apical band on segments 3—6, dilated laterally, lemon-yellow; apex black, shining, immaculate. Length .50 inch.

Two specimens from Dallas and Comal Counties. Resembles *mimica* ♂, and may be distinguished from it by the differently colored legs.

Cerceris firma, n. sp.

♀.—Black, clothed with a rather dense pale sericeous pubescence; head large, densely and coarsely punctured, ferruginous, sides of the face, and three spots on clypeus, pale yellow; front, middle of face, remainder of clypeus, lower half of cheeks and tips of mandibles, black; clypeus with a prominent process at base, on which is placed the middle yellow spot, the process broad at base and obtusely pointed at apex; interantennal carina sharply defined; antennæ black, the three basal joints ferruginous; thorax with dense coarse punctures, sparse on disk of mesothorax; two spots on prothorax above, line on postscutellum, spot on each side of metathorax and a dot on tegulæ anteriorly, yellow; sides of metathorax and sometimes the pro- and mesothorax and scutellum more or less, ferruginous; basal space of metathorax smooth and polished, with a few lateral punctures; wings subhyaline, apical margin rather broadly fuliginous, coxæ black, posterior tarsi dusky; abdomen black; first segment ferruginous with a narrow more or less indented band at apex; second segment with a broad yellow band, emarginate on the anterior middle with ferruginous; three following segments with a narrow apical yellow band, suddenly dilated laterally and generally interrupted on fifth segment; apical segment densely pubescent; venter immaculate, the base more or less ferruginous. Length .55 inch.

Four specimens. (Belfrage; Boll.) A very distinct and well marked species, easily recognized by the prominent unituberculate clypeal process.

Cerceris morata, n. sp.

♀.—Black, clothed with pale sericeous pubescence; sides of face, extending up on each side of antennæ, clypeus, mandibles except tips, spot behind summit of eyes, scape beneath, two nearly contiguous spots on prothorax above, postscutellum, a large spot on each side of metathorax and most of tegulæ, bright yellow; occiput more or less varied with ferruginous; clypeal process very prominent and much produced, quadrate, the anterior margin broad, slightly concave and tinged with fuscous, beneath it is concave, forming, as it were, a roof over apex of clypeus which is margined with black; antennæ black with basal half and apical joint pale fulvous; scutellum pale ferruginous, sometimes tinged with yellow; basal space of metathorax longitudinally striated; wings fuliginous, apical margin much darker, costal nerve and stigma fulvous; legs honey-yellow, tibiæ more or less pale yellow; abdomen with an apical pale yellow band on all the segments except the last, that on first segment slightly interrupted centrally and margined anteriorly with fulvous; that on second and fifth segments broad and regular; that on third and fourth segments broad laterally and narrowed centrally and sometimes margined anteriorly with ferruginous; apical segment dull ferruginous; venter banded with ferruginous and spotted laterally with yellow. Length .55 inch.

Two specimens. (Belfrage.) Closely resembles *vicina*, Cress., but the clypeal process is quadrate and not narrowed anteriorly as in that species, which is also smaller.

Cerceris compacta.

Cerceris compacta, Cress. Proc. Ent. Soc. Phil. v., p. 127.

Seven ♂ ♀ specimens. (Belfrage; Boll.) The yellow lateral yellow spot an metathorax is generally distinct and the first and second abdominal segments are occasionally tinged with ferruginous.

Cerceris nigrescens.

Cerceris nigrescens, Smith, Brit. Mus. Cat. iv., p. 466.

One ♀ specimen. (Belfrage.)

Cerceris fasciola, n. sp.

♂.—Black, clothed with long white pubescence; all beneath antennæ, dot behind summit of eyes, scape beneath, two spots on prothorax above, tegulæ and postscutellum, lemon-yellow; middle of clypeus prominent, depressed medially at tip, apical margin and tip of maudibles, black; antennæ pale fulvous, dusky above, apical joint as long as the preceding, curved, with obtuse tip; basal space of metathorax smooth and shining, depressed centrally and punctured laterally; wings yellowish-hyaline, the costa dusky beyond stigma; legs lemon-yellow, all the coxæ, except yellow spot on posterior pair outwardly, four anterior trochanters, base of their femora above, apex of posterior pair, and apical half of their tibiæ above, black; apex of posterior tarsi dusky; abdomen densely punctured, first segment subglobose, all the segments, except the last, with a continuous yellow apical baud, slightly narrowed centrally, that on first segment indented centrally and slightly interrupted; venter black, shining, segments 2—4 with an obscure yellowish lateral spot. Length .42 inch.

One specimen from Comal Co. Allied to *deserta*, Say.

Cerceris jucunda, n. sp.

♂.—Black, clothed with pale yellowish pubescence; face, orbits on each side of antennæ, clypeus, two nearly contiguous spots on prothorax above, scutellum and spot on tegulæ anteriorly, lemon-yellow; face and clypeus sparsely and coarsely punctured, the latter subconvex; mandibles entirely black; antennæ blackish above, pale fulvous beneath and at tip of apical joint which is straight and obtuse; basal space of metathorax punctured smooth at base; tegulæ pale fulvous behind; wings subhyaline, the costa beyond stigma broadly fuliginous; legs lemon-yellow, all the femora and posterior tibiæ except base pale ferruginous, four anterior femora yellow at tips beneath; anterior coxæ, base of two posterior pair, base of femora more or less and spot on posterior tibiæ behind, black; posterior tarsi dusky; abdomen shining, with deep, not dense, punctures, all the segments, except the last, with a continuous apical lemon-yellow band, broader on second segment; venter shining, with a continuous apical lemon-yellow band, broader on second segment; venter shining, with a median yellow band on second and third segments. Length .36 inch.

One specimen. (Coll. G. W. Belfrage.)

Cerceris Kennicottii.

Cerceris Kennicottii, Cress. Proc. Ent. Soc. Phil. v., p. 128.

One ♂ specimen. (Belfrage.)

MASARIDÆ.

Masaris texana.

Masaris texana, Cress. Trans. Am. Ent. Soc. iii., p. 348, ♂ ♀.

Five ♂ ♀ specimens. (Belfrage.)

Masaris occidentalis.

Masaris occidentalis, Cress. Trans. Am. Ent. Soc. iii., p. 348, ♀.

♂.—Color paler than in ♀, especially the face, clypeus and prothorax which are nearly yellow; much less coarsely sculptured; clypeus smaller, feebly punctured; the front as high up as, and enclosing, the posterior ocelli, and narrow orbits yellowish; antennæ ———; thorax as in ♀, the fulvous markings paler, the prothorax anteriorly being yellow; abdomen colored much as in ♀, narrower, gradually narrowed to apex, shining at base of the segments where they are more or less contracted, apical segment bifid at tip, the teeth obtuse, distant and slightly divaricate, beneath the tip the segment is produced into a transverse process, subemarginate at apex, anterior to this on each side a prominent rounded, scale-like carina; third ventral segment with a long, longitudinally flattened process on basal middle, truncate at tip and slightly hooked posteriorly. Length .65 inch.

Two ♂ ♀ specimens. (Belfrage.) The antennæ are unfortunately wanting in the ♂ specimen. In size this species is about equal with *vespoides.*

EUMENIDÆ.

Zethus spinipes.

Lethus spinipes, Say, Bost. Journ. Nat. Hist. i., p. 387.

Four ♂ ♀ specimens. (Boll.)

Eumenes fraterna.

Eumenes fraterna, Say, Long's 2d Exped. ii., p. 344.

Four ♀ specimens. (Belfrage; Boll.)

Eumenes Belfragei, n. sp.

♀.—Head black, with large, close punctures; clypeus dull yellowish, sericeous, a large blackish spot on upper middle, which is deeply and sparsely punctured, apex deeply notched; spot between antennæ, anterior orbits not extending above the deep emargination of the eyes, narrow posterior orbits, and labrum, dull yellowish; mandibles dull fulvous; antennæ yellowish-ferruginous, sometimes coccineous, scape yellowish beneath, apical half of flagellum black; thorax coarsely and confluently punctured; prothorax ferruginous, anterior margin yellow; mesothorax generally entirely black, sometimes with a ferruginous spot on each side; scutellum ferruginous, with a narrow dull yellowish band at base; postscutellum yellow; metathorax black, covered with a short pale sericeous pile and with a large somewhat oblique yellow mark on each side, sometimes margined with ferruginous; pleura black, sericeous, a yellow spot beneath tegulæ, margined anteriorly with ferruginous; tegulæ ferruginous; wings subhyaline, costa yellow, marginal cell fuscous; legs ferruginous, tibiæ and tarsi generally more or less yellow, coxæ and base of femora black; abdomen shaped as in *fraterna*, covered with a pale golden sericeous pile; first segment deeply punctured, black, stained with ferruginous on each side of apex, apical margin narrowly yellow; second segment blackish on disk, ferruginous laterally and apically, a transverse yellowish band before the middle, not reaching the extreme side, narrow band before apical margin and sometimes a large spot on apical middle, yellow, this segment is closely punctured, the subapical margin almost smooth, a transverse fuscous depression on apical middle, apical margin depressed and somewhat reflexed, dull ferruginous; remaining segments more or less tinged with yellowish; venter fusco-ferruginous, apical margin of second and following segments more or less yellowish. Length .55—.60 inch.

♂.—Clypeus entirely yellowish, silvery-sericeous; apex of antennæ fulvo-ferruginous, the apical joint small, acute, pale yellow.

Seven ♂ ♀ specimens. (Belfrage; Boll; Heiligbrodt.)

Eumenes Bollii, n. sp.

♀.—Clothed with a short dense dull yellow pubescence; head black, deeply punctured; clypeus yellow, sparsely punctured, apex deeply notched; spot between antennæ, anterior orbits not extending beyond emargination of eyes, narrow posterior orbits and labrum, also yellow; mandibles dull fulvous; antennæ black, the scape, two or three basal joints of flagellum above, and most of the joints beneath rufo-fulvous, sometimes almost coccineous; thorax with large, not close punctures; prothorax yellow-ferruginous, more or less yellowish in front; mesothorax black, sometimes tinged laterally with ferru-

ginous; scutellum ferruginous, black posteriorly; postscutellum yellow; metathorax yellow-ferruginous, black on basal middle and down the deeply channelled middle to the apex; pleura ferruginous, with anterior and posterior margins black, in one specimen entirely black, with ferruginous spot beneath tegulæ; wings fusco-hyaline, paler at apex and on posterior margin, costa yellow, blackish in marginal cell; legs yellow-ferruginous, tibiæ and tarsi yellow; abdomen shaped much like that of *Belfragei*, but stouter, the second segment more convex, almost globose; first segment smooth, polished, with dense short erect yellowish pubescence, ferruginous, base and disk of apical half black, narrow apical margin yellow; second segment shining, with sparse fine punctures and short dense yellowish pubescence, yellow with a large blackish angular band, sometimes quite broad, starting from the basal middle and forking posteriorly at about the basal third, reaching the lateral margin at the apex, from whence it narrowly margins the segment to the base, a shallow depression near the apical middle, apical margin narrow, deeply impressed and dull ferruginous; remaining segments ferruginous, tinged with yellowish above; venter ferruginous, more or less tinged with yellowish. Length .55 inch.

♂.—Smaller, less robust; clypeus narrower, and silvery-sericeous; apical joint of antennæ slender and acute; angular band on second abdominal segment ferruginous, remaining segments black, banded with yellow. Length .48 inch.

Three ♂ ♀ specimens. (Belfrage.) A very handsome and distinct species.

Monobia quadridens.

Vespa quadridens, Linn. Syst. Nat. ii., p. 951.

Seven ♂ ♀ specimens. (Belfrage; Boll; Heiligbrodt.)

Rhygchium dorsale.

Vespa dorsalis, Fabr. Ent. Syst. ii., p. 265.
Rygchium balteatum, Say, Bost. Journ. Nat. Hist. i., p. 383.
Rygchium louisianum, Sauss. Mon. des Guêpes Sol. p. 106, pl. 13, fig. 9.

Twenty-two ♂ ♀ specimens. (Belfrage; Boll; Heiligbrodt.) This fine species is exceedingly variable both in size and color, being sometimes almost entirely black, and sometimes entirely ferruginous, except the yellow band on first abdominal segment which is always conspicuous.

Odynerus tigris.

Odynerus tigris, Sauss. Rev. Mag. Zool. 1857, p. 273.

Five ♂ ♀ specimens. (Belfrage; Boll.)

Odynerus quadrisectus.

Odynerus quadrisectus, Say, Bost. Journ. Nat. Hist. i., p. 385.
Odynerus Bellone, St. Farg. Hym. ii., p. 660.

Two ♀ specimens. (Boll.)

Odynerus texanus, n. sp.

♀.—Ferruginous, closely and confluently punctured, clothed with a very short, golden sericeous pile, more obvious in certain lights; clypeus large, convex, sparsely punctured, apex notched, the angles prominent and tipped with black; a short sharp carina between antennæ; the front except a spot above base of antennæ and emargination of eyes which are yellowish, a large spot enclosing ocelli and two short oblique lines on occiput above, black; inner edge and apex of mandibles also black; antennæ black, scape and two basal joints of flagellum ferruginous; mesothorax black on anterior middle and on each side behind; scutellum narrowly black on anterior and posterior margins; postscutellum yellow-ferruginous; metathorax rugose above, broadly and deeply excavated behind, the excavation shining and somewhat transversely wrinkled, lateral angles prominent; wings fuscous; tarsi fuscous; abdomen long, fusco-ferruginous, sericeous; first segment narrower than second, campanulate, smooth and rounded at base, very sparsely and finely punctured, black at base, narrowly dull yellowish at apex; second segment more thickly punctured than the first, narrowly black at base; the following segments densely punctured; apical margin of the segments flat, not at all reflexed; venter entirely ferruginous. Length .65 inch.

One specimen. (Coll. G. W. Belfrage.) This is of a more elongate form than any of the following species, being more of the shape of *quadrisectus.*

Odynerus clusinus, n. sp.

♀.—Ferruginous, coarsely and confluently punctured, clothed with a short, erect, yellow-fuscous pubescence; head black, clypeus broad, narrowly truncate at tip, with large sparse shallow punctures, pale yellow, more or less stained with ferruginous on the disk; front with a broad ferruginous or yellow-ferruginous band filling in the emargination of eyes and enclosing two black somewhat oblique marks at base of each antenna; occiput, cheeks and mandibles ferruginous; posterior orbits sometimes yellowish; antennæ black, scape and two basal joints of flagellum ferruginous or coccineous; prothorax ferruginous, with a more or less distinct yellow band on anterior middle, sometimes continued narrowly on posterior margin; mesothorax black, a broad ferruginous stripe on disk not reaching anterior margin, before scutellum two short excavations; scutellum flat, shining, with large sparse punctures, posterior margin narrowly black; postscutellum yellow; metathorax deeply excavated behind, lateral ongles more or less yellow, posterior face shining, black at tip, transversely somewhat obliquely striated: pleura ferruginous laterally, with a yellow spot beneath tegulæ, beneath black; tegulæ yellow, pupilled with ferruginous; wings subhyaline, sometimes fusco-hyaline, costa yellow to stigma, fuliginous beyond; legs ferruginous, tibiæ more or less yellow on outer side; abdomen strongly pale sericeous; first segment as broad as second, rounded at base, smooth, impunctured, ferruginous, black at base, with a broad yellow band at apex, suddenly dilated laterally; second segment smooth, impunctured, except subapical margin which is deeply punctured, ferruginous, base narrowly black, apex broadly yellow, gradually dilated laterally; remaining segments deeply and coarsely punctured, yellow, black or ferruginous at base,

apical margin of the segments flat, not at all reflexed; venter yellow, ferruginous at base, sometimes the third segment has a broad black band at base. Length .60 inch.

♂.—Color pale yellow-ferruginous, much paler than ♀; clypeus entirely pale yellow; mandibles yellowish outside, as will as scape beneath · two apical joints of antennæ small, ferruginous, the terminal one acute; upper anterior margin of prothorax narrowly yellow; mesothorax ferruginous, black on anterior and posterior margins; tibiæ and tarsi pale yellow; wings yellowish-fuscous; color of abdomen much paler than in ♀, the apical yellow band on first segment not dilated laterally, sixth and seventh segments pale ferruginous. Length .55 inch.

Four ♂ ♀ specimens. (Belfrage.) Has much the general appearance of *Rhygchium dorsale*, and in color resembles several of the following species, but may be distinguished at once by the second segment (as well as first) except apex being smooth and impunctured.

Odynerus evectus, n. sp.

♀.—Head ferruginous, coarsely and irregularly punctured, cheeks and clypeus sometimes yellowish-ferruginous, emargination of eyes, broad triangular spot above base of antennæ, and upper margin of clypeus yellow; clypeus broad, sparsely punctured apex narrowly truncate; antennæ black, two basal joints ferruginous; thorax coarsely, confluently punctured; prothorax ferruginous, with a broad yellow band anteriorly; mesothorax ferruginous, more or less black on anterior middle; scutellum ferruginous, sometimes with a yellow dot on each side; postscutellum yellow; metathorax broadly concave behind, blackish, lateral angles broadly yellow, posterior face shining, sparsely punctured above, obliquely striated beneath; pleura black, with a partly ferruginous and partly yellow spot beneath tegulæ; tegulæ yellowish, pupilled with ferruginous; wings yellowish-fuscous, darker on costa; legs ferruginous, spot on intermediate coxæ and tips of their femora beneath, yellow; abdomen short, stout, more or less strongly sericeous; first segment as broad as second, smooth and rounded at base, impunctured, ferruginous, black on basal middle and on disk, a yellow band on apical margin suddenly dilated into a spot on each side; second segment strongly rather coarsely punctured, black, with a more or less distinct ferruginous spot on each side, apex depressed, coarsely and deeply punctured before apical margin which is smooth and impunctured; remaining segments coarsely punctured, black, the third and fourth segments with a narrow yellow apical margin; apical margin of the segments flat, not at all reflexed; venter black, varied with ferruginous and yellow; sometimes the yellow markings are quite obscure. Length .50—.55 inch.

Two specimens. (Belfrage.) Easily recognized from *clusinus* by the second abdominal segment being strongly punctured.

Odynerus designatus, n. sp.

♀.—Black, subsericeous; head shining, rather closely and deeply punctured, a duplex spot between antennæ, anterior orbits not reaching beyond emargination of eyes, and a broad line on upper posterior orbits yellow-ferruginous; clypeus broad, with sparse shallow punctures, ferruginous, upper margin, broader laterally, yellow, apex deeply emarginate, angles acute; mandi-

bles ferruginous, black at tip and on inner side and with a yellow spot at base; antennæ black, three basal joints yellow-ferruginous; thorax deeply, rather closely punctured; prothorax ferruginous, with a broad yellow band in front; mesothorax black; scutellum and postscutellum yellow, the former black at base and ferruginous medially; metathorax black, deeply and broadly excavated behind, a large yellow spot on each side, the lateral angles prominent and dentate, posterior face shining and obliquely striated; pleura black with a yellow spot beneath tegulæ; tegulæ yellow, pupilled with brownish; wings fusco-hyaline, darker along costa and in marginal cell, subvioiaceous, base yellow; legs yellow-ferruginous, tips of femora and tibiæ beneath yellowish; abdomen much as in *evectus*, rather narrower, first segment at base and disk sparsely punctured; apical margin of second segment rather strongly reflexed, the brown-ferruginous bloteh on each side of this segment large and irregular, enclosing near lateral margin a small yellow spot. Length .50 inch.

One specimen. (Coll. G. W. Belfrage.) Very near to *evectus*, from which it may be distinguished by the reflexed posterior margin of second abdominal segment.

Odynerus delicatus, n. sp.

♀.—Uniform fulvo-ferruginous, densely and confluently punctured, sides of thorax and abdomen whitish sericeous; a large triangular spot on middle of front, anterior orbits as far as emargination of eyes, upper half of clypeus, spot at base of mandibles, spot behind eyes, broad band on anterior margin of prothorax, two spots on scutellum, postscutellum, large spot on each side of metathorax, spot beneath tegulæ, all pale yellow; antennæ ferruginous, blackish at tips; tegulæ pale yellow, pupilled with fulvous; wings fusco-hyaline, darker along costa; first segment of abdomen smooth, rounded at base, with a few scattered punctures, a transverse pale yellow spot on each side, acute within and confluent with the rather broad pale yellow apical margin; second segment deeply rather coarsely punctured, somewhat depressed before apex where the punctures are deeper and coarser, a broad yellowish-white band on apical margin, before which on the disk there is a triangular blackish stain, extreme apical margin smooth, impunctured, flat, not at all reflexed; apical margin of third segment also yellowish white; apical margin of second and third ventral segments whitish. Length .45 inch.

One specimen from Comal Co. Very distinct by the uniform fulvo-ferruginous color and shape of yellow markings.

Odynerus cultus, n. sp.

♂.—Black, coarsely, confluently punctured, clothed with a very short white sericeous pile; a transverse subtriangular spot above base of antennæ, anterior orbits as far up as emargination of eyes and a large spot behind eyes, yellow-ferruginous; clypeus broad, flattened, sparsely punctured, yellow, apex broadly truncate with lateral angles prominent; labrum yellow; mandibles ferruginous on outer side; antennæ black, scape yellow beneath, apical joint of flagellum narrow, long, curved, dull ferruginous; prothorax dull ferruginous, dull yellow on anterior margin, and narrowly on posterior margin; mesothorax entirely black; scutellum with a dull ferruginous spot on each side; postscutellum, a large spot on each side of metathorax and spot beneath tegulæ

ferruginous; posterior face of metathorax deeply excavated, obliquely striated towards apex; tegulæ yellow-ferruginous, pupilled with brown; wings fusco-hyaline, marginal cell fuliginous; legs pale ferruginous, tibiæ more or less yellow beneath; abdomen shaped as in *clusinus*, strongly sericeous; first segment smooth, rounded at base, impunctured, ferruginous, more or less blackish on basal middle, with a narrow yellow apical margin; second segment black, rather closely and strongly punctured, depressed and coarsely punctured before apex which is broadly yellow and slightly reflexed, a small ferruginous spot on each lateral margin; the following segments black, the third, fourth and fifth with a narrow yellow band at apex; second and following segments with long, fine pale pubescence toward apex; venter black, first and second segments black, the second, third and fourth with a narrow yellow apical band. Length .45 inch.

Two specimens from Comal Co.

Odynerus verus, n. sp.

♀.—Size and shape of *cultus*, strongly and confluently punctured; head broad, ferruginous, spot at base of each antenna and a large blotch on vertex enclosing ocelli and extending to middle of occiput black; clypeus broad, coarsely punctured, apex truncate with prominent lateral angles; antennæ black, scape ferruginous; prothorax ferruginous, narrowly yellowish on anterior margin; mesothorax black, sometimes with a ferruginous spot on posterior middle; scutellum ferruginous, narrowly black posteriorly; postscutellum yellow; metathorax ferruginous, blackish on middle of posterior face which is deeply concave and obliquely striated towards apex, lateral angles yellow above; pleura black, with a yellow spot beneath tegulæ; tegulæ yellow, pupilled with ferruginous; wings subhyaline, more or less tinged with yellow or fuscous, costa yellow or fuscous, marginal cell fuliginous; legs uniformly pale ferruginous; abdomen slightly sericeous; first segment smooth, rounded at base, impunctured, ferruginous, a black spot on basal middle and another near apical middle, apex with a yellow band which is dilated into a spot on lateral margin; second segment strongly not densely punctured, more closely and coarsely punctured before apex which is broadly subdepressed, black, with a large ferruginous blotch on each side, apical margin broadly lemon-yellow; three following segments black, with narrow yellow apical margins; apical segment ferruginous; segments not reflexed at apex; venter ferruginous, second segment more or less stained with blackish, apical margins of second, third and fourth segments narrowly yellowish. Length .45 inch.

♀ var.—Color pale ferruginous, with the markings bright yellow; spot on vertex sometimes almost obsolete; emargination of eyes and upper margin of clypeus sometimes yellow; anterior margin of prothorax broadly yellow; mesothorax entirely ferruginous, or with a black spot on anterior middle; scutellum with a yellow spot on each side; pleura ferruginous, with yellow spot beneath tegulæ; tibiæ more or less yellow beneath; abdomen pale ferruginous, with the yellow apical margins bright; venter ferruginous. Length .45 inch.

♂.—Smaller than ♀, more strongly sericeous; vertex black; a very large triangular mark on middle of front, anterior orbits filling in emargination of eyes, clypeus, labrum, base of mandibles and scape beneath, cream-white;

cheeks sometimes black beneath; clypeus sparsely and finely punctured; tip of antennæ as in *cultus;* yellow band in front of prothorax always distinct; mesothorax varies from entirely black to almost entirely ferruginous; scutellum generally black with a yellow spot on each side, sometimes black immaculate, sometimes almost entirely yellow; metathorax pubescent ferruginous, without yellow spot on each side; pleura black or ferruginous, with yellow spot beneath tegulæ; abdomen varies as in ♀. Length .45 inch.

Thirteen specimens. (Belfrage; Boll.) A very variable species. The clypeus is not so broadly truncate at tip as that of *cultus*, which is a larger, darker colored and more strongly sericeous species.

Odynerus ductus, n. sp.

♀.—Ferruginous, coarsely and confluently punctured; spot at base of each antenna, and large mark covering vertex, extending to occiput, black; clypeus flattened, longitudinally rugulose, apex truncate; sometimes the black on vertex is confluent with the spot at base of each antenna, leaving a subcordate ferruginous spot on middle of the front; antennæ black, scape ferruginous; anterior margin of prothorax sometimes yellowish; mesothorax entirely black; posterior margin of scutellum narrowly black; postscutellum yellow; metathorax black, very broadly and deeply excavated behind, lateral angles prominent, subserrate and ferruginous above, posterior face shining, obliquely striated; pleura black with a large yellow-ferruginous spot beneath tegulæ; tegulæ ferruginous, pupilled with fuscous; wings fusco-hyaline, fuscous along costa and in marginal cell; legs uniformly ferruginous; abdomen subsericeous; first segment smooth, impunctured, subopaque, ferruginous, base abrupt, more or less of basal middle extending in a gradually attenuated line to apical margin, black, apical margin yellow, suddenly dilated on each side; second segment shining, very sparsely punctured at base, the punctures becoming more close to apex, before which they are deep and coarse, black, with a large ferruginous blotch on each side, apical margin narrowly yellow; third and fourth segments closely and coarsely punctured, black, apical margin narrowly yellow; apex ferruginous; apical margin of second and third segments strongly reflexed; venter mostly ferruginous. Length .45—.50 inch.

♂.—Smaller, more strongly sericeous; head black, spot above base of antennæ, anterior orbits as far up as emargination of eyes and clypeus yellow; line behind eyes, labrum and mandibles ferruginous; scape yellow in front, apical joint of flagellum long, narrow, curved, rufo-piceous; tibiæ more or less yellowish; disk of first abdominal segment broadly black, ferruginous blotch on each side of second segment much reduced. Length .40 inch.

Five specimens. (Belfrage.) This is allied to *evectus* in general appearance, but may be separated at once by the strongly reflexed apical margin of second and third abdominal segments.

Odynerus fusus, n. sp.

♀.—Coarsely, confluently punctured; head black; cheeks, paler above, and a stain across the front, ferruginous; spot above base of antennæ, anterior orbits as far up as emargination of eyes, broad upper margin of clypeus and spot at base of mandibles, yellow; remainder of clypeus, labrum and mandibles ferruginous; clypeus broad, flattened, sparsely punctured, truncate at tip;

antennæ black, two or three basal joints ferruginous; prothorax ferruginous, with a narrow yellow band in front; mesothorax black, with a dull reddish spot over tegulæ; scutellum and postscutellum ferruginous, the former with an obscure yellowish spot on each side; metathorax broadly excavated behind, ferruginous, lateral angles prominent, coarsly serrate, yellow, posterior face blackish medially; pleura black, with a small yellow spot beneath tegulæ, stained anteriorly with ferruginous; tegulæ yellowish, pupilled with ferruginous; wings fusco-hyaline, fuliginous along costa and in marginal cell, violaceous; legs ferruginous, knees and tibiæ beneath yellowish; abdomen robust, sericeous; first segment rounded, sparsely punctured, more closely so towards apex, ferruginous, a black spot on basal middle, extending in a narrow line nearly to apex, apical margin broadly yellow, suddenly dilated on each side; second segment closely and strongly punctured, black, with a large dull ferruginous blotch on each side separated before apex by a slender black line, apical margin depressed, densely and coarsely punctured, yellow, the margin strongly reflexed; remaining segments densely and strongly punctured, ferruginous, more or less black at base, apical margins flat, that of third segment yellowish; venter ferruginous, a small yellow spot on each apical corner of second segment. Length .60 inch.

♂.—Much smaller than ♀; spot above base of antennæ much larger, subtriangular and confluent with a spot between antennæ; clypeus entirely yellow as well as outer side of mandibles; scape beneath pale yellow, apical joint of flagellum long, narrow, curved, pale yellowish; mesothorax more or less varied with ferruginous, and black, sometimes entirely ferruginous; scutellum generally with a yellow spot on each side; postscutellum always ferruginous; pleura generally ferruginous, with the yellow spot beneath tegulæ conspicuous; knees, tibiæ and tarsi more or less yellow; second abdominal segment ferruginous, more or less black at base, besides the broad yellow apical band there is sometimes a rounded yellow spot on each side between base and apex; apical margins of segments 3—5 narrowly yellow. Length .45 inch.

Four specimens. (Belfrage.) The apical margin of the second segment only is reflexed and the first abdominal segment is strongly punctured.

Odynerus firmus, n. sp.

♀.—Black, subsericeous; clypeus generally more or less stained with pale ferruginous, with a cuneiform yellowish mark on each side at base, pointing within, the points sometimes confluent; mandibles ferruginous, black at tips, sometimes with a yellowish spot at base; anterior orbits as far up as the emargination, sometimes a transverse mark above insertion of antennæ, a large spot behind summit of eyes, and scape of antennæ in front, yellowish or yellowish-ferruginous; prothorax black, brown or ferruginous, with a more or less distinctly defined yellow band in front; tegulæ yellow, pupilled largely with brown ferruginous; postscutellum and a large spot on each side of metathorax, bright lemon-yellow; wings subhyaline, subviolaceous, costa rather broadly fuliginous; legs ferruginous, coxæ, trochanters, and base of femora, black; first segment of abdomen more or less ferruginous, with a central black mark, sometimes larger, sometimes smaller, its apical margin lemon-yellow, dilated into a large angular spot on each side of the segment; apical margin of second

and third segments lemon-yellow, sometimes tinged anteriorly with ferruginous; apical margin of fourth segment narrowly yellowish-ferruginous; second segment has sometimes an obscure ferruginous spot on each side; the yellow posterior margin of the first segment has a very fine brown or black, longitudinal, abbreviated line down the middle, and a transverse one on each side; beneath, the segments have a narrow pale posterior margin, and a yellow spot on second and third segments, largest on the second. Form robust, compact; head and thorax densely and coarsely punctured, with as short, fine, golden pubescence; clypeus flattened, apex truncate; metathorax short, abrupt, broadly excavated behind, lateral angles prominent; abdomen broad ovate; first segment smooth, pale sericeous; remaining segments closely punctured, more coarsely so on posterior submargin, which is depressed and subsinuous on second segment. Length .45—.55 inch.

The ♂ has the clypeus, anterior orbits, spot above antennæ, labrum, base of mandibles, scape in front, coxæ in front, most of legs in front, sometimes a spot on each side of second abdominal segment, apical margin of fourth and fifth segments beneath, lemon-yellow; sides of metathorax ferruginous, the upper part yellow; sometimes there is a small yellow spot beneath anterior wing; tip of antennæ ferruginous, hooked. Length .45 inch.

Described from three ♀, two ♂, specimens. Allied in form and somewhat in ornamentation to *O. Boscii*, St. Farg. This also occurs in Colorado.

Odynerus geminus, n. sp.

♀.—Black, coarsely and confluently punctured, clothed with a short pale pubescence, longer and more dense on apex of second and following abdominal segments; clypeus and a large spot behind summit of eyes ferruginous; spot above base of antennæ, anterior orbits as far up as emargination of eyes and and upper margin of clypeus, yellow; clypeus broad, flattened, sparsely punctured, apex narrowly truncate; antennæ black, scape dull ferruginous; prothorax ferruginous, anterior margin narrowly yellow; scutellum with an obscure ferruginous dot on each side; postscutellum lemon-yellow; lateral angles of metathorax yellow, posterior face deeply excavated, obliquely striated; pleura entirely black; tegulæ ferruginous, margined with yellowish; wings fusco-hyaline, darker along costa, violaceous, marginal cell fuscous; legs ferruginous, coxæ black, knees and tibiæ beneath tinged with yellowish; abdomen subsericeous; first segment smooth, impunctured, a ferruginous stain on each side, the apical margin rather broadly yellow, suddenly dilated on each side; second segment shining, deeply, finely but not densely punctured, apical margin much depressed especially on middle and coarsely punctured, narrowly lemon-yellow, sometimes a small transverse fulvous spot on each side; remaining segments generally immaculate, coarsely punctured, sometimes the third segment has a narrow margin at apex; apical margin of all the segments flat, not at all reflexed; venter black, a small yellow spot on each apical corner of second segment. Length .50 inch.

Three specimens. (Belfrage.) Closely allied to *firmus*, of which it may prove to be a variety; the pleura is however entirely black.

Odynerus manifestus, n. sp.

♂ ♀.—Black, shining, clothed with a rather dense short pale pubescence, longer and more dense on abdomen; head and thorax with coarse, rather sparse punctures; a triangular spot between antennæ, anterior orbits as far up as emargination of eyes, spot behind summit of eyes and the clypeus, yellow or yellow-ferruginous; clypeus narrowly truncate at tip, densely punctured, flattened on disk where it is stained with fuscous or black in ♀; mandibles ferruginous; antennæ black, scape ferruginous, yellow beneath, apical joint in ♂ long, narrow, curved, dull ferruginous; prothorax tinged anteriorly with ferruginous, with a broad yellow band in front; a rounded spot on each side of scutellum, the postscutellum, a spot on each side of metathorax above and a rounded spot beneath tegulæ, yellow; metathorax deeply concave behind, the posterior face obliquely wrinkled; tegulæ yellow, pupilled with ferruginous; wings fusco-hyaline, subviolaceous, fuliginous along costa and in marginal cell; legs ferruginous, base black, tips of femora beneath and the tibiæ more or less yellow; abdomen almost polished, rather densely pubescence; first segment sparsely punctured, base roundly truncate, apical margin with a yellow band confluent laterally with a large yellow mark which is pointed towards disk; second segment strongly, rather closely punctured, more coarsely and densely so towards apex, which is depressed and broadly evenly margined with yellow; third and fourth segments narrowly margined at apex with yellow; apical segment black; apical margin of the segments flat, not at all reflexed; venter black, with a yellow spot on each apical corner of second segment. Length .50—.55 inch.

Four specimens. (Belfrage.) This fine species is more pilose than any other of the genus known to me from Texas.

Odynerus foraminatus.

Odynerus foraminatus, Sauss. Mon. des Guêpes Sol. p. 180.

Five ♂ ♀ specimens. (Belfrage; Boll.)

Odynerus campestris.

Odynerus campestris, Sauss. Mon. des Guêpes Sol. p. 137.

Two ♂ ♀ specimens. (Belfrage.)

Odynerus uncinatus.

Odynerus uncinata, Say, Bost. Journ. Nat. Hist. i., p. 386.

One ♀ specimen. (Belfrage.)

Odynerus colon, n. sp.

♀.—Black, densely and coarsely punctured; spot between base of antennæ, dot in emargination of eyes, upper margin of clypeus, spot on base of mandibles, short line or spot behind eyes, scape beneath, two sublunate spots on anterior margin of prothorax, dot behind tegulæ, postscutellum, sometimes an obsolete spot on each side of metathorax, a rounded spot beneath tegulæ, apical margins of abdominal segments 1—5, broader on first and second, a large oblique spot on each side of first and a small round spot on each side of second about midway between base and apex, all lemon-yellow; tegulæ fulvous, pupilled with fuscous; wings fusco-hyaline, darker along costa and in marginal cell; legs black, tips of femora, tibiæ and tarsi fulvo-ferruginous;

abdomen strongly and closely punctured, coarsely so towards apex, apical margins of first and second segments slightly reflexed; second ventral segment margined at apex with yellow. Length .40 inch.

♂.—Clypeus entirely, narrow anterior orbits, labrum and stripe on mandibles, yellow; clypeus deeply notched at apex; antennæ sometimes rufo-testaceous beneath; first and second abdominal segments more strongly reflexed than in ♀. Length .35 inch.

Four specimens. (Belfrage.) Also found in Colorado.

Odynerus fulvipes.

Odynerus fulvipes, Sauss. Mon. des Guêpes Sol. Suppl. p. 205.

One ♀ specimen. (Belfrage.)

Odynerus fundatus, n. sp.

♀.—Black, closely and coarsely punctured, subsericeous; small spot between base of antennæ, dot in emargination of eyes, upper margin of clypeus, labrum, spot on base of mandibles, spot behind eyes, broad anterior margin of prothorax, its posterior margin narrowly, dot behind tegulæ, postscutellum, lateral angles of metathorax, round spot beneath tegulæ, knees beneath, broad apical margins of first and second abdominal segments, that on the first dilated laterally, a round spot on each side of second segment near base, narrow apical margins of third and fourth segments, and a spot on each apical corner of second ventral segment, all lemon yellow; sometimes there is a yellow dot on posterior middle of mesothorax; clypeus coarsely punctured, subemarginate at tip; mandibles long, grooved, tinged with ferruginous towards apex; scape rufo-piceous, yellowish beneath; tegulæ ferruginous, sometimes pupilled with dusky; wings fusco-hyaline, fuscous along costa; legs ferruginous, coxæ black; abdomen more or less strongly sericeous; first segment rounded at base, densely and strongly punctured, narrower than second segment, sometimes more or less tinged with ferruginous and the apical yellow band sometimes quite narrow; second segment densely and strongly punctured, coarsely so towards apex, remaining segments less strongly punctured. Length .35—.40 inch.

♂.—Strongly sericeous; clypeus entirely, a cuneiform mark between antennæ, anterior orbits as far up as emargination of eyes, and short line behind eyes, white or pale yellow; clypeus deeply notched at tip; antennæ long, scape whitish beneath, flagellum fulvous beneath, thickened at tips, apical joint shaped as usual, entirely black; posterior margin of prothorax sometimes entirely black; spot on posterior middle of mesothorax often present; metathorax sometimes entirely black; tibiæ yellowish beneath; all the abdominal segments above except the last, and the second ventral, margined with yellow at apex. Length .30—.35 inch.

Twelve specimens. (Belfrage; Boll.) Closely allied to *anormis*, Say, from which it may be distinguished by the ferruginous legs.

Odynerus anormis.

Eumenes anormis, Say, Long's 2d Exped. ii., p. 346.

Nine ♂ ♀ specimens. (Belfrage; Boll.)

Odynerus austrinus, n. sp.

♂ ♀.—Differs from *fundatus* only as follows:—Clypeus of ♀ with a broad arcuate yellowish line above; first abdominal segment longer, more sparsely punctured at base and with a narrow, transverse, central yellow band slightly interrupted on the disk; spot on posterior middle of mesothorax always present. Length .30—.35 inch.

Four specimens. (Belfrage.) Also closely allied to *vagus*, from which it differs by the ferruginous legs and much less reflexed apical margin of second abdominal segment.

Odynerus vagus.

Odynerus vagus, Sauss. Rev. Mag. Zool. 1857, p. 277.

One ♀ specimen. (Belfrage.)

Odynerus Taos.

Odynerus Taos, Cress. Trans. Am. Ent. Soc. i., p. 381.

Two ♂ ♀ specimens. (Belfrage.)

Odynerus bellulus, n. sp.

♀.—Black, densely and strongly punctured; head large, subquadrate; subcordate spot above base of antennæ, upper margin of clypeus, and spot behind summit of eyes, yellowish-white; emargination of eyes filled in with silvery pubescence; clypeus broad, sometimes tinged with ferruginous, apex subemarginate; scape of antennæ sometimes ferruginous; anterior margin of prothorax, interrupted medially, posterior margin of scutellum or a spot on each side and a spot beneath tegulæ, yellowish-white; postscutellum, metathorax, legs and basal segment of abdomen ferruginous; metathorax deeply excavated posteriorly, the sides clothed with a silvery pile; tegulæ yellow, pupilled with ferruginous; tarsi dusky; wings subhyaline, costa and marginal cell dusky; abdomen shaped as in *rufinodus*, densely and strongly punctured, apical margins of first and second segments narrowly whitish and strongly reflexed, second segment with a rounded whitish spot on each side near base; apical segments finely and sparsely punctured; venter ferruginous at base, second segment margined at apex with whitish. Length .28 inch.

Two specimens. (Belfrage.) Closely allied to *rufinodus*, Cress., from Colorado, but easily distinguished by the white markings of face and spot on each side of second abdominal segment.

Odynerus electus, n. sp.

♂.—Black, opaque, densely punctured, clothed with a pale sericeous pile, dense in emargination of eyes; clypeus entirely pale yellow, apex deeply notched; antennæ long, thickened towards apex, scape yellowish beneath, apex of flagellum tinged with ferruginous, the apical joint minute, curved; anterior margin of prothorax, slightly interrupted medially, posterior margin of scutellum also slightly interrupted medially, and spot beneath tegulæ, yellowish-white; postscutellum prominent; metathorax excavated posteriorly, sides rather densely pubescent, apex with a prominent whitish scale on each side; tegulæ pale yellowish, pupilled with fuscous; wings hyaline, very faintly dusky along costa and in marginal cell; legs black, knees beneath and tibiæ

outwardly yellowish-white; abdomen densely punctured, ferruginous, first and second segments narrowly margined at apex with whitish, dilated laterally on second segment; first segment rounded at base, cup-shaped; apical segment more or less dusky; venter ferruginous, apical margin of second segment white. Length .28 inch.

One specimen. (Coll. G. W. Belfrage.)

Pterochilus 5-fasciatus.

Pterochilus 5-fasciatus, Say, Long's 2d Exped. ii., p. 317.

Two ♀ specimens. (Belfrage; Heiligbrodt.)

Pterochilus texanus, n. sp.

♀.—Black; the large broad transverse convex clypeus, labrum and mandibles and a dot between insertion of antennæ, fulvo-ferruginous; anterior orbits as far up as sinus and a line on posterior orbits yellow; palpi fulvous, ciliated with long curved yellowish hair; antennæ blackish, the scape and flagellum beneath fulvo-ferruginous; prothorax fulvo-ferruginous, narrowly margined with yellow anteriorly; mesothorax closely punctured, with a small obscure ferruginous spot on each side over tegulæ; scutellum and postscutellum fulvous, a spot on each side of the former and the anterior margin of the latter, yellow; posterior margin of scutellum narrowly black; metathorax with a large fulvous spot on each side of the smoothly excavated middle, tinged with yellowish within; a rounded yellowish spot beneath tegulæ, which is yellowish-fulvous, pupilled with brownish; wings yellow-hyaline, dusky before apices; legs fulvous, posterior tibiæ yellow behind; abdomen oblong-ovate, densely rugosely punctured, somewhat shining, first segment broadly yellow at apex, fulvous at base with a central longitudinal black mark; second segment with a rather narrow apical yellow band, slightly dilated laterally and on each side near base a large fulvous spot; third segment with an undulate apical yellow band; two following segments each with a broad yellow band at apex, emarginate on anterior middle and enclosing a small black spot on each side; apical segment and venter black, shining. Length .50 inch.

One specimen. (Coll. G. W. Belfrage.) Resembles 5-*fasciatus* in miniature.

Pterochilus laticeps, n. sp.

♀.—Black, closely and strongly punctured, clothed with a very short, more or less brilliant silvery sericeous pile, more dense on pleura and metathorax; head large, much broader than thorax, two approximate dots above base of antennæ, anterior orbits as far up as emargination of eyes, short line behind eyes and a large spot on each side of clypeus at base pale yellowish; apical margin of clypeus, labrum and mandibles except tips bright ferruginous; clypeus large, broad, sparsely punctured, truncate at tip; palpi honey-yellow, ciliated with long yellowish hairs; antennæ fulvous, blackish above towards apex, scape sanguineous; band on prothorax above acute laterally, two spots on scutellum, posterior margin of postscutellum, large spot beneath tegulæ, and a rounded spot on each side of metathorax, pale yellowish; metathorax but slightly excavated behind; tegulæ whitish, with a small central fuscous spot; wings hyaline, dusky along costa and narrowly at apex; legs ferruginous, coxæ mostly blackish, anterior femora beneath and stripe on outside of four

posterior tibiæ, whitish; abdomen strongly sericeous with whitish pile, densely rather coarsely punctured; first segment rather small, campanulate, rounded at base, ferruginous, blackish at base, apex broadly yellowish-white; second segment black with a large ferruginous blotch on each side, obscurely confluent on disk, apex broadly yellowish-white, squarely indented on each side of middle; remaining segments blackish, margined at apex with whitish; venter black, second segment stained laterally with reddish and margined at apex with whitish, remaining segments, except last, with a whitish lateral spot. Length .40 inch.

♂.—Clypeus white with a minute median black dot, covered entirely with a bright silvery pile; antennæ long, thickened toward tips, fuscous above, scape yellow beneath, flagellum fulvous beneath, the extreme apex fulvous, and slightly hooked; abdomen more slender than in ♀, without any ferruginous coloring, with white apical bands as in ♀, the second segment having on each side about midway a rounded white spot. Length .38 inch.

Three specimens. (Belfrage.)

VESPIDÆ.

Polistes canadensis.

Vespa canadensis, Linn. Syst. Nat. i., p. 952.

Three ♂ ♀ specimens. (Belfrage.)

Polistes rubiginosus.

Polistes rubiginosus, St. Farg. Hym. i., p. 524.

Fifteen ♂ ♀ specimens. (Belfrage; Boll; Heiligbrodt.)

Polistes perplexus. n. sp.

♂.—Ferruginous, strongly golden sericeous; face and clypeus flat, dull yellowish-white, pale on orbits and above insertion of antennæ; mandibles and cheeks beneath more or less dull yellowish-white; antennæ ferruginous, paler at base beneath, the joints above more or less black, especially those at apex; collar more or less black, prothorax generally narrowly margined with pale yellow; mesothorax black, with two central, longitudinal, more or less distinct ferruginous lines; scutellum sometimes divided centrally by a black line; metathorax with a broad deep longitudinal groove, finely and transversely aciculated, ferruginous, generally with three longitudinal black lines which are sometimes subobsolete, sometimes the metathorax is entirely ferruginous excepting the groove which is always black, sometimes entirely black excepting a spot on flanks and a stripe on each side of the groove; pleura generally yellowish beneath, more or less black laterally; wings fuscous, darker along costa and in marginal cell, second and third submarginals with subhyaline streaks; legs ferruginous, the four anterior coxæ, femora and tibiæ beneath more or less pale yellowish, all the coxæ more or less black above; abdomen of different shades of ferruginous, strongly golden sericeous, the three basal segments have frequently a more or less distinct narrow yellow apical margin, the base of second, third and fourth segments more or less broadly black sometimes obsoletely so, sometimes only the second, or third, or fourth are so marked; ventral segments more or less marked with black at base, the intermediate segments sometimes banded with yellow. Length .75—.85 inch.

Six specimens. (Belfrage; Boll.) Allied to *rubiginosus*, from which it differs by the black vertex and mesothorax, paler wings and markings of abdomen, which are, however, extremely variable. This may prove to be only a ♂ variety of *rubiginosus*.

Polistes generosus. n. sp.

♂.—Head subsericeous; face long, dull luteous; anterior orbits, band above antennæ filling up emargination of eyes, and mandibles, yellowish-white or luteous; venter and occiput black; cheeks and a dot on each side behind ocelli, ferruginous; clypeus longer than wide, flat, sparsely and finely punctured, apex angular; ridge between antennæ prominent, subtuberculate above; antennæ long, black above, fulvous beneath, scape yellowish beneath; collar black, narrowly edged with fulvous above; prothorax fulvo-ferruginous, black laterally, upper margin narrowly edged with yellowish; mesothorax black, with two short ferruginous stripes on anterior middle; scutellum black with two ferruginous spots; postscutellum ferruginous, narrowly margined with black; metathorax transversely rather coarsely wrinkled above, with a broad shallow groove down the middle, black, a slender stripe on each side of groove and a spot on each flank, ferruginous; pleura black, a ferruginous spot beneath tegulæ and a luteous subangular mark behind anterior coxæ; tegulæ ferruginous, fuscous at base; wings yellowish-fuscous, darker along costa; legs fulvous, yellowish beneath, sericeous, four anterior coxæ above, posterior pair entirely and all the femora above, black; abdomen subsericeous, fulvo-ferruginous, a longitudinal mark on basal middle of first segment, basal margin of second segment, triangularly dilated above and suddenly dilated laterally, and narrow basal margin of third and fourth segments, black; apex of second and following segments stained more or less with fuscous; apical segment blackish, rugulose; venter black. Length .90 inch.

Three specimens. (Belfrage; Heiligbrodt.) This may be an extreme variety of *perplexus*.

Polistes texanus. n. sp.

♀.—Dull ferruginous, sericeous; head yellow, vertex, occiput and posterior margin of cheeks, ferruginous; clypeus subconvex, sparsely punctured, sometimes tinged with fulvous at base; antennæ entirely fulvo-ferruginous; narrow margins of prothorax, sometimes a band at base of scutellum, postscutellum more or less, two stripes on disk of metathorax, a spot or stripe on each side, a spot beneath tegulæ, a dot beneath posterior wing and the tegulæ more or less, yellow; metathorax with a shallow median groove, transversely striated; wings yellowish-fuscous, darker along costa; sometimes the mesothorax has two short discal lines; anterior coxæ beneath, line on outside of four posterior coxæ, four anterior femora beneath except base, tips of all the femora and outer side of all the tibiæ and base of tarsi, more or less yellow, tips of tarsi fuscous; abdomen strongly pale golden sericeous; rather broad apical margin of all the segments, except last, even on first segment and more or less strongly sinuate anteriorly on remaining segments, an angular mark on each side of first segment, sometimes reduced to a dot, and a spot on each side of remaining segments, larger on second, and sometimes nearly confluent with apical band, all yellow; all the apical bands are slightly interrupted or indented

medially by a slender ferruginous line; venter ferruginous more or less varied with yellowish; sometimes the yellowish markings on second and following segments are more or less obscure. Length .85 inch.

♂.—Closely resembles ♀; the face flat as usual, whitish-yellow, this color extending above antennæ and on line with emargination of eyes; clypeus flat; prothorax sometimes broadly yellowish laterally; mesothorax occasionally with two short discal yellow lines; the markings of abdomen vary considerably, being sometimes very distinct, with the apical bands broad and lemon-yellow and the lateral spots round and whitish, sometimes the apical bands are narrow and the lateral spots wanting except on second segment, sometimes the first segment has no lateral spot. Length .85 inch.

Eight specimens. (Belfrage; Boll; Heiligbrodt.)

Polistes bellicosus, n. sp.

♂ ♀.—Uniformly dull ferruginous, subsericeous; ♀ clypeus, sides of face, transverse line above antennæ, posterior orbits broader beneath and mandibles, yellow, clypeus subconvex, and sparsely punctured; ♂ clypeus, face as far up as and on a line with emargination of eyes, narrow posterior orbits broader beneath, and mandibles yellow, clypeus flat; antennæ of male long, pale beneath, dark above, scape yellowish beneath; margins of prothorax, basal margin of scutellum, postscutellum, two longitudinal lines on disk of metathorax, sometimes a lateral spot, spot beneath tegulæ, space between four anterior coxæ in ♂, tegulæ, line on outer side of all the coxæ of ♀, coxæ beneath of ♂, knees and four anterior tibiæ and tarsi beneath of ♀ and narrow apical margin of abdominal segments, more or less sinuate anteriorly and sometimes a spot on each side of first and second segments, all lemon-yellow; mesothorax generally with a fine central longitudinal black line; metathorax finely transversely wrinkled; wings fuscous, or fusco-hyaline, yellowish along costa, subviolaceous. Length .75 inch.

Seven specimens. (Belfrage.) Smaller, less robust and darker in color than *texana*, to which it is closely allied. The ornamentation of the abdomen is, however, very different.

Polistes variatus, n. sp.

♀.—Strongly sericeous, black; a transverse, subangular line above antennæ, posterior orbits, broader beneath, and mandibles except tips, yellow; clypeus subconvex, sparsely punctured, ferruginous, more or less broadly yellow at apex; cheeks sometimes ferruginous; antennæ ferruginous, black above; prothorax ferruginous, black on extreme lateral corner and narrowly margined anteriorly and posteriorly with yellow; mesothorax and pleura, except yellow spot beneath tegulæ, entirely black; scutellum and postscutellum ferruginous, margined at base with yellow; metathorax black, with four longitudinal yellow stripes, the lateral one sometimes slightly undulate, disk longitudinally sulcate and finely transversely wrinkled; tegulæ fulvous, margined with yellow; wings fusco-hyaline, darker and yellowish along costa; legs ferruginous, coxæ black, with yellow stripe on outside, knees, anterior femora and all the tibiæ and tarsi beneath, more or less yellow, tips of posterior tibiæ blackish within; abdomen strongly sericeous, fuscous or black, varied with dull ferruginous especially on second segment, apical margin of each segment, dilated

laterally and slightly interrupted medially, and an irregular spot on each side, largest on second segment, yellow; beneath ornamented much as above. Length .75 inch.

♂.—Face and clypeus flat, as usual, and yellow as far up and on a line with emargination of eyes, cheeks beneath broadly yellow; antennæ long, yellowish beneath, apex curled and black; sides of prothorax, and pleura anteriorly and beneath pale yellow; thorax without any ferruginous color; scutellum sometimes with only a lateral yellow dot at base; lateral stripes of metathorax sometimes wanting; coxæ and all the legs beneath pale yellow, femora more or less black above; abdomen darker than in ♀, sides of second segment with a large ferruginous blotch enclosing a yellow spot, lateral margin of first segment yellow; disk of second, third and fourth ventral segments with a large triangular yellow mark, apical margins also yellow. Length .75 inch.

Six specimens. (Belfrage; Boll.)

Polistes americanus.

Vespa americana, Fabr. Ent. Syst. ii., p. 276.

Nine ♀ specimens. (Belfrage; Boll.)

Polistes minor.

Polistes minor, Beauv. Ins. p. 207, pl. 8, fig. 3.

Five ♀ specimens. (Belfrage; Boll.)

Polistes annularis.

Vespa annularis, Linn. Syst. Nat. ii., p. 950.

Ten ♂ ♀ specimens. (Belfrage; Boll; Heiligbrodt.)

Vespa sulphurea.

Vespa sulphurea, Sauss. Mon. Guêpes Soc. p. 137.

Five ♀ specimens. (Boll; Heiligbrodt.)

Vespa germanica.

Vespa germanica, Fabr. Ent. Syst. ii., p. 256.

Four ☿ specimens. (Boll.)

Vespa cuneata.

Vespa cuneata, Fabr. Syst. Piez. p. 258.

Three ♂ ☿ specimens. (Belfrage; Heiligbrodt.)

ANDRENIDÆ.

Colletes valida.

Colletes valida, Cress. Proc. Bost. Soc. Nat. Hist. xii., p. 165.

Three ♂ ♀ specimens. (Boll.)

Colletes inæqualis.

Colletes inæqualis, Say, Bost. Journ. Nat. Hist. i., p. 391.

Two ♀ specimens. (Belfrage; Boll.)

Colletes americana.

Colletes americana, Cress. Proc. Bost. Soc. Nat. Hist. xii., p. 167.

Three ♂ ♀ specimens. (Belfrage; Boll.)

Colletes texana, n. sp.

♀.—Robust, black, shining, head and thorax clothed with a short dense whitish cinereous pubescence, very sparse on clypeus, which is shining and sparsely punctured; thorax strongly, rather coarsely punctured, the pubescence on mesothorax and scutellum more sparse and mixed with black, basal edge of metathorax very coarsely reticulated; tegulæ pale piceous; wings short, hyaline; legs clothed with cinereous pubescence, longer on femora behind and dense on posterior legs; abdomen broad, convex, as long as head and thorax, shining, minutely punctured, base and sides of first segment with a white downy pubescence, apical margins of segments 1—5 with a narrow, even fascia of snow-white pubescence; apical segment small, obtusely pointed, clothed with short black pubescence. Length .35 inch.

One specimen from Comal Co. The abdominal faseiæ are very even and conspicuous.

Colletes consors.

Colletes consors, Cress. Proc. Bost. Soc. Nat. Hist. xii., p. 168.

One ♁ specimen. (Belfrage.)

Colletes albescens.

Colletes albescens, Cress. Proc. Bost. Soc. Nat. Hist. xii., p. 168.

Three ♀ specimens. (Belfrage.)

Prosopis affinis.

Prosopis affinis, Smith, Brit. Mus. Cat. i., p. 24.

One ♀ specimen. (Belfrage.)

Sphecodes texana, n. sp.

♀.—Black, shining, thinly clothed with a short cinereous pubescence, longer and more dense on cheeks, scutellum, metathorax and pleura; clypeus sparsely punctured, fringed anteriorly with long yellowish hairs, which cover the labrum; mandibles tinged with rufous; scape long and slender, flagellum brown beneath, paler towards apex; thorax very minutely and delicately punctured: basal space of metathorax finely granulated, becoming smooth on posterior edge; tegulæ honey-yellow; wings large, clear hyaline, subiridescent, nervures and stigma honey-yellow; legs slender, tibiæ and tarsi pale brownish, thickly clothed with pale yellowish hairs; abdomen large, smooth and polished, sides of three basal segments and apical segments entirely clothed with a short cinereous pubescence, bright honey-yellow, three apical segments dusky and sericeous. Length .35 inch.

♁.—Slender, more closely and densely punctured; apex of clypeus, labrum, and spot on mandibles white; antennæ longer, stouter, and scape much shorter than in ♀; knees, anterior tibiæ, base and apex of four posterior tibiæ and all the tarsi yellowish-white; abdomen more slender than in ♀, narrowed towards base, and less dusky at apex. Length .30 inch.

Four specimens. (Belfrage.)

Sphecodes dichroa.

Sphecodes dichroa, Smith, Brit. Mus. Cat. i. p. 3[illegible].

One ♀ specimen. (Belfrage.)

Sphecodes mandibularis, n. sp.

♀.—Black, shiniug, closely and finely punctured, thinly clothed with glittering whitish hairs, more dense on face, cheeks, scutellum and sides of thorax, and long on scutellum; mandibles ferruginous, tips black; antennæ short, stout, apex of flagellum pale testaceous beneath; mesothorax sparsely punctured; basal space of metathorax slightly excavated, coarsely rugose, the posterior edge subcarinate; basal sides of metathorax with a patch of white downy pubescence; tegulæ pale testaceous, darker at base; wings hyaline, subiridescent, nervures and stigma blackish; tibiæ and tarsi with rather dense glittering pubescence, tarsi pale; abdomen oblong-ovate, smooth and polished, bright rufo-ferruginous, base, sides and apex with a thin pale glittering pubescence, apex slightly dusky. Length .22 inch.

Two specimens. (Belfrage.)

Halictus occidentalis, n. sp.

♀.—Black, opaque, finely punctured; head not wider than thorax; face with rather dense pale ochraceous pubescence; clypeus shining, sparsely punctured, apex fringed with long golden hairs; mandibles reddish medially; cheeks with appressed whitish pubescence, fringed beneath with long yellowish hairs; vertex and occiput with short erect pale ochraceous pubescence; antennæ brownish beneath, pale at apex; mesothorax and scutellum with a finely impressed central longitudinal line, clothed with a very short pale pubescence: upper lateral margin of prothorax, patch before tegulæ, narrow lateral aud posterior margins of metathorax, postscutellum, sides of metathorax and pleura clothed with dense ochraceous pubescence; base of metathorax finely subgranulated; tegulæ pale testaceous; wings yellowish, apical margin fuliginous; legs fulvous, with goldeu pubescence, coxæ, trochanters and base of femora more or less blackish; abdomen broader than thorax, oblong-ovate, very finely and closely punctured, shiuing towards apex, first segment clothed with erect pale pubescence, apical margins of segments 1—4 with an even fascia of dense white pubescence, and rima pale ochraceous. Length .55 inch.

♂.—Narrower than ♀; clypeus except two black spots at base, labrum and middle of mandibles pale yellow; antennæ long, pale fulvous beneath; sides of mesothorax and of metathorax and disk of first abdominal segment sometimes tinged with ferruginous; apex of wings but slightly dusky; knees, tibiæ and tarsi more or less tinged with yellow; abdomen narrower than in ♀ and more strongly punctured, anal segment more or less tiuged with ferruginous or fulvous. Length .45 inch.

Four specimens. (Belfrage; Boll.)

Halictus armaticeps, n. sp.

♀.—Black, head and thorax rather thickly clothed with griseous pubescence; head slightly broader than thorax, very densely punctured, opaque; clypeus shining, very sparsely puuctured, slightly depressed on auterior middle, apex fringed with long golden hairs; mandibles piceous; cheeks beneath with a subacute tubercle or spine on each side; antennæ short, flagellum brown beneath, paler at tips; thorax above closely punctured aud thinly pubescent, scutellum flat, shining, sparsely punctured, postscutellum, sides of metathorax, sides of thorax in front of tegulæ and pleura deusely pubescent; base of metathorax finely longitudinally rugose, sometimes almost striated; tegulæ rufo-

testaceous; wings hyaline, nervures honey-yellow; legs more or less tinged with brown and clothed with ochraceous pubescence; abdomen oblong-ovate, very finely and densely punctured, sericeous, base and sides of first segment and apex with griseous pubescence, apical margins of segment 1—4 with a narrow even fascia of short dense whitish pubescence, anal rima pale ochraceous. Length .30—.35 inch.

Eight specimens. (Belfrage; Boll.) The stout tubercle or spine on each side of head beneath, found also in ♀ of *texanus*, varies considerably in length and acuteness, being sometimes long and acute, sometimes short and blunt.

Halictus texanus, n. sp.

♀.—Black, very closely and finely punctured; head not wider than thorax, clothed with a short cinereous pubescence, more dense on face and cheeks and long and thin on cheeks beneath; clypeus and middle of face shining, very sparsely punctured, the former fringed at apex with long golden hairs; mandibles tinged with red; cheeks beneath with a stout obtuse tubercle; antennæ short, brown, flagellum pale beneath; prothorax tinged with ferruginous; upper lateral margin of prothorax, anterior margin of mesothorax, postscutellum, sides of metathorax and of pleura clothed with dense griseous pubescence; metathorax and pleura except a blotch beneath wings, pale ferruginous; base of metathorax finely granulated; tegulæ honey-yellow; wings hyaline, faintly dusky at tips, nervures and stigma honey-yellow; legs pale ferruginous or fulvous, with pale yellow pubescence, four anterior femora more or less black; abdomen oblong-ovate, densely and minutely punctured, sericeous, segments 1—4 each with an apical fascia of white pubescence, anal rima cinereous, first, second and basal margin of third segments pale fulvo-ferruginous. Length .30 inch.

♂.—Smaller, narrower than ♀, more densely pubescent, that on sides of face dense and silvery-white; clypeus except base, labrum and middle of mandibles lemon-yellow; cheeks unarmed; antennæ long, flagellum yellow with a brown streak above not reaching apex, apex of scape beneath pale; sides of metathorax above and nearly the whole of pleura black; knees, tibiæ and tarsi more or less lemon-yellow; abdomen more convex than in ♀, narrower, more thickly pubescent, two basal segments strongly tinged with fulvous. Length .25 inch.

Two specimens. (Coll. G. W. Belfrage.)

Halictus similis.

Halictus similis, Smith, Brit. Mus. Cat. i., p. 69.

Six ♀ specimens. (Belfrage.)

Halictus bardus, n. sp.

♀.—Deep black, closely punctured, head and thorax rather thickly clothed with a griseous pubescence; head not wider than thorax; middle of face and clypeus shining, sparsely punctured, the punctures on clypeus large, apex fringed with long golden hairs; antennæ entirely black; scutellum smooth and shining, sparsely punctured; base of metathorax finely irregularly longitudinally wrinkled; on postscutellum, sides of metathorax and pleura the

pubescence is long; tegulæ piceous-black; wings hyaline, apical third faintly dusky, nervures and stigma fuscous; legs blackish with griseous pubescence, changing to pale yellow in certain lights; abdomen smooth and shining, very minutely punctured, base of first segment and extreme sides of all the segments with pale pubescence, which is also thinly scattered over apical segments, basal margin of segments 2—4 with a narrow fascia of short dense white pile, anal rima brown. Length .35 inch.

Two specimens. (Belfrage.) Closely allied to *similis*, but the punctures on head and thorax are more dense, the pubescence paler, the base of metathorax more finely sculptured, the tegulæ black, the wing nervures fuscous, the pubescence of legs paler and the abdomen less shining and more closely and finely punctured.

Halictus ornatipes, n. sp.

♂.—Narrow, black, closely and finely punctured, thickly clothed with griseous pubescence; sides of face and base of clypeus with short dense white pubescence; clypeus produced, lemon-yellow, base black; labrum and mandibles except tips also lemon-yellow; cheeks with long white pubescence; flagellum yellow-testaceous beneath; scutellum smooth and shining, sparsely punctured; base of metathorax finely rugulose, sides closely punctured; tegulæ pale yellow, with a dusky pupil; wings hyaline, subiridescent, nervures and stigma honey-yellow; legs black with white pubescence, knees, tibiæ, except elongate blackish spot on each side, and tarsi lemon-yellow; abdomen elongate, subconvex, with scattered pale pubescence, apical margin of all the segments with a fascia of whitish pubescence more dense laterally, apical margins of all the segments narrowly dull rufo-testaceous. Length .30—.35 inch.

Four specimens. (Belfrage; Boll.) This may prove to be the ♂ of *armaticeps*.

Halictus impurus, n. sp.

♀.—Blue-green, shining, clothed with a short erect or suberect pale pubescence, very dense on the face; head densely and finely punctured; clypeus squarely produced at tip, which is margined with testaceous; labrum, tips of mandibles and flagellum beneath also testaceous; mesothorax and scutellum smooth and polished; metathorax rugose, the basal space with radiating striæ; tegulæ and tubercles testaceous; wings hyaline, iridescent, nervures fuscous, stigma paler; legs shining black, with pale pubescence, knees, tibiæ and tarsi pale testaceous, tibiæ with a dusky mark on outer middle; abdomen elongate, convex, smooth and shining, with a short thin pale pubescence, rufo-testaceous, more or less blackish at base and apex; venter paler than above. Length .32 inch.

Two specimens. (Belfrage.)

Halictus lusorius, n. sp.

♀.—Black; head and thorax closely and finely punctured, thinly clothed with a griseous pubescence; head small; clypeus produced, shining, with large scattered punctures, apex fringed with long yellowish hairs; mandibles rufo-piceous at tips; mesothorax with a well-impressed central line; base of metathorax finely longitudinally rugose; tegulæ dull testaceous; wings long,

ample, yellowish-hyaline, nervures and stigma pale honey-yellow; legs brown-black, with pale hairs; abdomen ovate, smooth and polished, impunctured, base, sides and apex with pale pubescence, apical margins of the segments broadly testaceous, anal rima pale fulvous. Length .30 inch.

Two specimen. (Belfrage.) Easily distinguished by the broad testaceous apical margin of abdominal segments.

Halictus connexus, n. sp.

♀.—Robust, head and thorax dark green, thinly clothed with short pale pubescence; head broad, closely and minutely punctured, more sparsely so on face and clypeus, apex of latter purplish-black and fringed with long yellowish hairs; mandibles sometimes rufo-piceous; flagellum pale brown towards apex; thorax very finely not closely punctured, the mesothorax with the central longitudinal line generally deeply impressed anteriorly; scutellum sparsely punctured, faintly impressed centrally; base of metathorax with more or less irregular radiating elevated lines generally not reaching posterior margin of the enclosure; pubescence on postscutellum, sides of metathorax and pleura long; tegulæ pale honey-yellow; wings clear hyaline, iridescent, nervures and stigma very pale; legs brown, black at base, clothed with pale pubescence; abdomen ovate, convex, black, smoothed and polished, imperceptably punctured, sides of first and second and the remaining segments clothed with a short pale pubescence, becoming more dense at apex, apical margin of the segments narrowly testaceous. Length .23—.27 inch.

Seventeen specimens. (Belfrage.) The thorax is very finely and sparsely punctured, differing in that respect from the other species.

Halictus disparilis, n. sp.

♀.—Head and thorax brassy-green, thinly clothed with a pale pubescence; head not broad, densely punctured; clypeus sparsely punctured, apex purplish-black and fringed with long pale ochraceous pubescence; mandibles more or less tinged with ferruginous; flagellum more or less pale beneath towards apex; pubescence of thorax above erect and slightly tinged with ochraceous; mesothorax sparsely punctured, with a central and lateral impressed longitudinal lines; scutellum finely and densely punctured on the disk; base of metathorax more or less distinctly rugulose, with irregular radiating elevated lines, sometimes quite obsolete; tegulæ testaceous; wings hyaline, iridescent, nervures pale fuscous or pale testaceous; legs brown-black, with pale pubescence, tarsi more or less pale; abdomen short ovate, convex, smooth and shining, impunctured, black, with an æneous tinge or reflection, base, sides and apex clothed with a short whitish pubescence, thinly scattered over disk of the segments except first and second which are nude and polished, apical margin of the segments subtestaceous. Length .20—.25 inch.

Eight specimens. (Belfrage.) This is allied to *connexus*, but differs by the brassy-green color of head and thorax, by the more dense pubescence, which is tinged with ochraceous or yellow on vertex and thorax above, and by the narrower head.

Halictus coactus, n. sp.

♀.—Green, abdomen dark æneous, clothed with a short pale pubescence; head very densely and finely punctured; clypeus slightly produced, with large sparse punctures, apex broadly purplish and fringed with long yellow hairs; flagellum pale brown beneath, especially at tips; mandibles tipped with ferruginous; thorax much less closely punctured than the head; base of metathorax finely, somewhat longitudinally, rugose; tegulæ brown; wings hyaline, iridescent, nervures and stigma pale honey-yellow; legs brown-black, clothed with pale pubescence; abdomen ovate, convex, very minutely punctured, sides and apex thickly clothed with short pale pubescence, apical margin of first and second segments deeply impressed or constricted, especially that of first segment. Length .20 inch.

Four specimens. (Belfrage.) Easily recognized by the constricted segments of abdomen.

Halictus stultus, n. sp.

♀.—Small, head and thorax dull dark green, sometimes tinged with brassy, thinly clothed with a short griseous pubescence; head not broader than thorax, closely and minutely punctured, face broad, clypeus short, sparsely punctured, purplish-black towards apex which is fringed with long pale yellowish hairs; mandibles piceous, sometimes tinged with rufous; antennæ short, black, flagellum more or less pale beneath towards apex; mesothorax very minutely and sparsely punctured, sometimes almost imperceptably so, a deeply impressed central longitudinal line; scutellum slightly impressed centrally; base of metathorax with radiating elevated lines which are sometimes more or less abbreviated; on postscutellum, sides of metathorax and pleura the pubescence is longer than elsewhere; tegulæ testaceous; wings hyaline, iridescent, nervures and stigma pale testaceous; legs pale brown or fuscous, blackish at base, clothed with pale pubescence, anterior knees and all the tarsi rufo-testaceous; abdomen smooth and shining, impunctured, more or less thickly pubescent towards apex, the base and sides thinly pubescent, color variable, being sometimes entirely brown-black, sometimes fuscous with the segments testaceous at apex, sometimes more or less testaceous at base, shading into brown or fuscous at apex, sometimes entirely testaceous or dull honey-yellow. Length .16—.20 inch.

Ten specimens. (Belfrage.)

Halictus albitarsis, n. sp.

♂.—Dark bronzed-green, sometimes slightly brassy, clothed with a whitish pubescence; head not broader than thorax, densely and finely punctured, sides of face and clypeus densely clothed with an appressed silvery-white pile; mandibles piceous; antennæ long, black above, brown or pale fuscous beneath; mesothorax and scutellum with sparse minute punctures and generally with a distinct impressed longitudinal line on disk and over tegulæ; pubescence of thorax above erect, longer on postscutellum, sides of metathorax and pleura; metathorax generally tinged with blue, the base more or less longitudinally rugose, sometimes with well-defined and distinct radiating elevated lines or wrinkles; sides of metathorax and pleura finely roughened; tegulæ testaceous, sometime dull; wings hyaline, iridescent, nervures and stigma pale testaceous; legs black or piceous, shining, clothed with pale pubes-

cence, knees, tips of tibiæ and tarsi pale yellow or whitish; abdomen elongate, sometimes slightly clavate, convex, shining, less green than head and thorax, sides of three basal segments and the apical segments clothed with a short thin pale pubescence, longer at apex, the second and third segments slightly constricted at base, apical margin of the segments sometimes subtestaceous. Length .15—.25 inch.

Twenty-six specimens. (Belfrage; Boll.) Easily recognized by the pale tarsi.

Augochlora lucidula.

Augochlora lucidula, Smith, Brit. Mus. Cat. i., p. 81.

Two ♂ ♀ specimens. (Belfrage.)

Augochlora sumptuosa.

Augochlora sumptuosa, Smith, Brit. Mus. Cat. i., p. 82.

Four ♀ specimens. (Boll.)

Augochlora pura.

Halictus pura, Say, Bost. Journ. Nat. Hist. i., p. 395.

Ten ♂ ♀ specimens. (Belfrage; Heiligbrodt.)

Agapostemon tricolor.

Halictus tricolor, St. Farg. Hym. ii., p. 289.

Six ♂ specimens. (Belfrage; Boll; Heiligbrodt.)

Agapostemon æruginosus.

Agapostemon æruginosus, Smith, Brit. Mus. Cat. i., p. 86.

One ♀ specimen. (Heiligbrodt.)

Agapostemon texanus, n. sp.

♀.—Bright green, tinged with blue in certain lights, clothed with a pale ochraceous pubescence; head finely, very densely punctured, strongly tinged with blue, middle of face transversely wrinkled; clypeus rather sparsely punctured, apex purplish-black; labrum with dense pale ochraceous hairs; mandibles pale yellow, piceous at tips; flagellum pale brown beneath; mesothorax more or less tinged with golden, extremely minutely and closely punctured, interspersed with larger sparse punctures; scutellum sparsely punctured, base of metathorax longitudinally wrinkled, the enclosed base with radiating wrinkles, the surrounding carina sharply defined, the flanks strongly tinged with blue; pleura densely, rather coarsely and confluently punctured; tegulæ pale testaceous, with a yellow spot anteriorly; wings hyaline, faintly dusky at apex, nervures and stigma pale honey-yellow; legs brown-black, clothed with ochraceous pubescence, four anterior knees yellowish; abdomen green, changing in certain lights, densely and finely punctured, clothed with a very short fine pale sericeous pile, base and sides of the first, the two or three apical and sides of intermediate segments, clothed with tolerably long pale pubescence, the apical segment clothed with a dense black pubescence, apex of the segments depressed, the disk with a more or less obvious bluish or purplish band. Length .40—.45 inch.

Six specimens. (Belfrage; Boll.) Allied to *æruginosus*, Smith,

which is, however, more golden and less blue, with the mesothorax uniformly punctured; the abdomen is much alike in both species.

Nomia Nortoni.

Nomia Nortoni, Cress. Trans. Am. Ent. Soc. i., p. 385.

Eight ♂ ♀ specimens. (Belfrage; Boll.)

Nomia? heteropoda.

Nomia heteropoda, Say, Long's 2d Exped. ii., p. 349.

Three ♂ ♀ specimens. (Boll.)

Andrena reflexa, n. sp.

♂.—Broad, robust, black, shining; head slightly broader than thorax, face broad, clypeus dull yellowish-white; face, clypeus, labrum, occiput and cheeks thickly clothed with a long fulvo-ochraceous or pale ochraceous pubescence; vertex sparsely and finely punctured, naked, smooth and polished; mandibles long, piceous or black, antennæ brown-black, flagellum rufo-testaceous beneath; thorax clothed with a rather long, dense fulvous or pale ochraceous pubescence, paler on metathorax and pleura; tegulæ testaceous; wings subhyaline, apex pale fuliginous, with a slight violaceous reflection; legs fuscous, with pale yellowish or ochraceous pubescence, tarsi fulvous; abdomen short, broad ovate, finely and closely punctured, thinly clothed with a fulvo-ochraceous or pale ochraceous pubescence, apical margin of the segments much depressed, broadly pale testaceous and thickly fringed with pale pubescence, the extreme apical edge of the three or four basal segments more or less strongly reflexed, sides of the segments and apex more thickly pubescence. Length .45 inch.

Three specimens. (Belfrage.) One specimen differs only in the head being much larger, and may prove to be a distinct species.

Andrena Belfragei, n. sp.

♀.—Black, shining; head not broader than thorax, face, occiput and cheeks clothed with long, rather dense fulvous pubescence, clypeus with a short fulvous pubescence, large, closely punctured with a smooth median longitudinal impressed line; antennæ short, flagellum brown beneath towards apex; mesothorax, scutellum and space beneath tegulæ clothed with a dense deep fulvous pubescence, that on metathorax long and ochraceous, that on pleura pale ochraceous; tegulæ rufo-piceous; wings yellowish-hyaline, apex rather broadly fuscous, subviolaceous; legs brown-black, with pale pubescence, tarsi brown, the pubescence on tibiæ and tarsi dense and pale yellowish; abdomen broad, depressed, oblong-ovate, shining, first segment sparsely and finely punctured, polished, thinly clothed at base and sides with pale pubescence, remaining segments densely punctured with apical margin depressed, smooth and polished, sides of second, third and fourth segments, and apical margin of fourth segment with a thin pale pubescence, anal fimbria fulvous. Length .55 inch.

One specimen. (Coll. G. W. Belfrage.) A very pretty species, the pubescence of thorax above being deep fulvous, or somewhat of a saffron color, and the abdomen shining and almost entirely naked above, except apex which is fulvous.

Andrena permitis, n. sp.

♀.—Black; head as wide as thorax, sides of face and of clypeus, occiput and cheeks clothed with long, rather dense, pale yellowish pubescence; clypeus closely punctured, with a smooth central line; mandibles piceous or rufo-piceous; flagellum brown beneath, pale towards apex; thorax clothed with a long dense bright lemon-yellow pubescence, paler on metathorax and pleura; tegulæ testaceous; wings subhyaline, apical margin fuliginous; legs brown-black or brown, with pale yellowish pubescence, tibiæ and tarsi pale brown; abdomen densely punctured, apical margin of the segments pale testaceous, having a band of dense pale ochraceous pubescence, sides of first segment with long ochraceous pubescence, anal fimbria tinged with fulvous; ventral segments fringed at apex with long pale pubescence. Length .52 inch.

Four specimens. (Belfrage.)

Andrena melliventris, n. sp.

♀.—Black; head as broad as thorax, sides of face, occiput and cheeks clothed with rather dense yellowish pubescence; clypeus large, closely punctured, shining, yellowish-testaceous, thinly pubescent, with two long yellowish setæ on apical middle; mandibles piceous; flagellum brownish beneath; thorax above clothed with a very dense, short, bright fulvous pubescence, which on metathorax and pleura is long and paler; tegulæ testaceous; wings yellowish-hyaline, apical margin dusky; legs black, tinged with brown, clothed with pale yellowish pubescence, which on four posterior tibiæ and tarsi is fuscous, changing to yellowish in certain lights; abdomen elongate ovate, flattened, opaque, minutely, not closely punctured, clothed with a very short yellowish pubescence more dense on sides of the segments, first segment with a long thin yellowish pubescence at base and sides, and with two testaceous spots on the disk, apical margin of the segments yellowish testaceous and fringed with short dense ochraceous pubescence, anal fimbria ochraceous; venter honey-yellow, stained with fuscous on apical third, the segments clothed with long yellowish pubescence towards apex. Length .55 inch.

One specimen. (Coll. G. W. Belfrage.) A pretty and distinct species.

Andrena verecunda, n. sp.

♀.—Black; head and thorax clothed with a dense, rather long, cinereous pubescence; head not wider than thorax, pubescence on clypeus short; antennæ short, flagellum brown beneath towards apex; tegulæ piceous; wings hyaline, apical margin dusky, nervures fuscous; legs black, more or less tinged with brown, with pale or cinereous pubescence, tarsi brown; abdomen oblong-ovate, shining, sparsely and minutely punctured, thinly clothed with a short cinereous pubescence, first segment, extreme sides and depressed apical margin of segments 2—4 and the anal fimbria, of rather dense cinereous pubescence; venter more or less tinged with rufo-testaceous, the segments fringed with cinereous pubescence. Length .45—.50 inch.

Two specimens. (Belfrage.)

Andrena imitatrix, n. sp.

♀.—Black; head not broader than thorax, sides of face and of clypeus, occiput and cheeks with long rather dense cinereous pubescence; flagellum brown beneath towards apex; thorax above sparsely punctured, clothed with a rather dense cinereous pubescence, slightly tinged with ochraceous; sides of metathorax and pleura with long cinereous pubescence; base of metathorax more or less coarsely reticulated; tegulæ piceous; wings hyaline, faintly tinged with yellowish; legs black, with cinereous pubescence, tarsi brown; abdomen oblong-ovate, depressed, shining black, closely and finely punctured, first segment polished, base, sides and lateral apical margin with cinereous pubescence, apical margin of segments 2—4 depressed and with a fascia of dense white pubescence, anal fimbria whitish, sometimes tinged with ochraceous; ventral segments fringed at apex with long pale pubescence. Length .40 inch.

Three specimens. (Belfrage.) Rather smaller than *verecunda*, with the pubescence of head and thorax less dense and the abdomen less pubescent and with the fasciæ conspicuous and white.

Andrena hirticeps.

Andrena hirticeps, Smith, Brit. Mus. Cat. i. p. 116.

Four ♂ specimens. (Belfrage.)

Andrena brunniventris, n. sp.

♂.—Black, head and thorax thickly clothed with a long pale ochraceous pubescence, very dense and paler on clypeus; head broader than thorax, face broad; mandibles long, piceous, reddish towards tips; flagellum brownish beneath; pubescence on thorax above, especially on scutellum tinged with yellowish; tegulæ dull testaceous; wings pale yellowish-hyaline, apex pale fuscous; legs blackish, tinged with brown, clothed with ochraceous pubescence, tarsi rufo-testaceous; abdomen ovate, convex, shining, chocolate-brown, clothed with a short scattered pale pubescence, which is dense and ochraceous at apex. Length .43 inch.

One specimen. (Coll. G. W. Belfrage.) Differs from *hirticeps* principally by the color of the abdomen.

Andrena texana, n. sp.

♂.—Black; head as wide as thorax; face, clypeus, occiput, cheeks, thorax, legs and basal segment of the abdomen clothed with a long, more or less dense yellow ochreous pubescence; antennæ long, flagellum brown beneath; base of metathorax rugulose; tegulæ pale piceous; wings hyaline, apex broadly dusky, second submarginal cell narrower than usual; legs piceous, tibiæ and tarsi brown, the latter pale brown; abdomen oblong-ovate, shining, minutely not closely punctured, clothed with a very short dense dull yellowish pubescence, apical margin of the segments subtestaceous and with a band of short dense yellow ochreous pubescence, apex with dense ochraceous pubescence; venter fusco-testaceous, the segments fringed at apex with ochreous pubescence. Length .40 inch.

Ten specimens. (Belfrage.) A very distinct little species, with the pubescence quite dense and of a uniform yellow ochreous color.

Andrena miserabilis, n. sp.

♀.—Black; head not broader than thorax; face, occiput and cheeks clothed with long yellow ochreous pubescence; clypeus large, shining, almost naked, sparsely punctured, disk impunctured; flagellum brown beneath; thorax thickly clothed with a long yellow ochreous pubescence, not quite hiding the surface of mesothorax and scutellum; tegulæ dull testaceous; wings yellowish-hyaline, iridescent, faintly dusky at tips, nervures and stigma honey-yellow; legs black or piceous, clothed with ochraceous pubescence, tarsi paler; abdomen oblong-ovate, depressed, shining, extremely minutely punctured, base and sides of first segment, apical margin of all the segments clothed with an ochraceous pubescence, anal fimbria of same color. Length .32 inch.

♂.—Smaller, more slender; clypeus with a long dense pale ochraceous pubescence, that on head and thorax longer than in ♀; antennæ long; base of metathorax coarsely reticulated; anterior tarsi rufo-testaceous, four posterior tarsi pale honey-yellow, and sometimes also the posterior tibiæ; abdomen more convex than in ♀. Length .30 inch.

Eight specimens. (Belfrage.)

Andrena bipunctata, n, sp.

♂.—Black; head slightly broader than thorax, face, occiput and cheeks with long griseous pubescence; clypeus broad, whitish, smooth and shining, with a small black spot on each side, apex fringed with long pale pubescence; mandibles piceous at tips; flagellum testaceous beneath; thorax clothed with a long, not dense, griseous pubescence; base of metathorax with a few short radiating elevated lines; tegulæ piceous; wings hyaline, iridescent, faintly dusky at apex, nervures and stigma honey-yellow; legs black or piceous, with pale pubescence, tarsi subtestaceous at apex: abdomen elongate, shining, with a short scattered pale pubescence, apical margin of the segments narrowly pale testaceous, apex with long pale pubescence. Length .35 inch.

Two specimens. (Belfrage.) Easily recognized by the broad white clypeus with two conspicuous black dots.

APIDÆ.

Panurgus æthiops, n. sp.

♀.—Robust, deep black; head not broader than thorax, closely and coarsely punctured, finer and more dense on face and clypeus, which have a scattered yellowish pubescence, as well as cheeks and posterior margin of head; clypeus not produced; mandibles piceous; antennæ short, black; mesothorax shining, with large sparse punctures, those on scutellum and pleura closer and coarser, those on postscutellum dense and confluent; mesothorax deeply impressed on anterior middle; metathorax rounded very densely and rather finely punctured, basal depressed margin narrow, with short crenulated striæ, behind which on each side is a smooth shining space; tegulæ dull testaceous; wings uniformly dark fuliginous, with subhyaline blotches at tip of second submarginal cell and beneath; legs black, tibiæ and tarsi brownish, the latter paler, densely clothed with yellow pubescence, long on posterior pair, extreme base of four anterior tibiæ with a pale yellow spot; abdomen broad ovate, depressed, closely and finely punctured, apical margin of the segments

rather broadly smooth and polished, narrowed laterally, extreme sides of segments 2—4, apex of fifth segment and the apical segment except disk, with dense ochraceous pubescence, otherwise the abdomen above is naked, disk of apical segment triangular, base of first segment deeply indented centrally; ventral segments with an apical band of long erect ochraceous pubescence. Length .45 inch.

♂.—Narrower than ♀; face not quite up to antennæ, clypeus, scape beneath, knees, tibiæ and tarsi, all lemon-yellow; the pubescence on legs short and sparse; abdomen narrow, convex, the segments slightly constricted at base, extreme apex of abdomen with short, dense pale ochraceous pubescence; venter fuscous, with short pale ochraceous pubescence at apex of segments. Length .40 inch.

Ten specimens. (Belfrage.)

Panurgus albitarsis, n. sp.

♀.—Black, shining, sparsely punctured, clothed with griseous pubescence, which is long on vertex, cheeks, postscutellum and pleura; clypeus with large scattered punctures; labrum with golden hairs; antennæ short, brownish at tips; sides of metathorax finely and densely punctured, basal enclosed longitudinally striated; tegulæ testaceous; wings hyaline, iridescent, nervures and stigma testaceous, marginal cell truncate at tip; legs brown-black, with pale pubescence, four anterior tarsi pale brown with pale yellowish pubescence, posterior pair dull white or yellow, posterior tibiæ with a floccus of long whitish pubescence; abdomen oblong-ovate, flattened, shining, finely punctured, the apical margins broad, smooth and polished, piceous, tinged with dull testaceous at apex, sides of second and third segments and apex of remaining segments clothed with long pale pubescence, extreme apex with short, dense pale ochraceous pubescence; ventral segments with a band of erect pale pubescence. Length .28 inch.

♂.—Narrower than ♀ and more closely punctured; sides of face and clypeus lemon-yellow; knees, line on anterior tibiæ in front and all the tarsi yellowish-white; abdomen narrower, second and third segments slightly constricted at base. Length .25 inch.

Four specimens. (Belfrage.)

Panurgus ornatipes, n. sp.

♂.—Black, closely and finely punctured; head and thorax clothed with a short dense pale pubescence, tinged with brownish on mesothorax; face, clypeus, labrum, mandibles except tips, and scape beneath more or less, lemon-yellow; flagellum brownish beneath; mesothorax closely punctured, the pubescence short, erect and dense; metathorax sparsely pubescent, closely and finely punctured, narrow basal enclosure crenulated, behind which is a narrow smooth space; tubercles lemon-yellow; tegulæ brown testaceous; wings hyaline, iridescent, apical margin dusky, marginal cell truncate at tip; legs black with pale pubescence, knees, tibiæ and tarsi lemon-yellow, an elongate central black spot on each side of the tibiæ; abdomen elongate, closely and finely punctured, apical margin of the segments broadly depressed, smooth and polished, subtestaceous at apex, sides of three basal segments, and the remaining segments clothed with pale pubescence, tinged with yellowish on apical

segments, all the segments have at base a very short brownish-sericeous pile, more obvious in perfectly fresh specimens; first segment deeply notched at base, the second and third segments slightly depressed at base. Length .25 inch.

Four specimens. (Belfrage.)

Panurgus picipes, n. sp.

♂.—Deep black, with large sparse punctures and clothed rather thickly with a short griseous pubescence; sides of face and clypeus lemon-yellow; mesothorax with a well-impressed central line; metathorax sculptured as in *ornatipes;* tubercles black; tegulæ brown, paler on outer margins; wings hyaline, iridescent, very faintly dusky at apex, marginal cell truncate at tip; legs piceous, with pale pubescence, knees and tarsi brownish-testaceous; abdomen as in *ornatipes,* except that there is no brown sericeous pile and the depressed polished apical margin of the segments are piceous, the second, third and fourth segments are constricted at base, the pubescence pale. Length .26 inch.

Two specimens. (Belfrage.)

Perdita? albipennis.

Perdita? albipennis, Cress. Trans. Am. Ent. Soc. ii., p. 386.

One specimen. (Belfrage.)

Osmia lignaria.

Osmia lignaria, Say, Bost. Journ. Nat. Hist. i., p. 399.

Three specimens. (Boll.)

Osmia chalybea.

Osmia chalybea, Smith, Brit. Mus. Cat. i., p. 143.

One ♀ specimen. (Belfrage.)

Osmia texana, n. sp.

♂.—Dark green or blue-green, head and thorax densely and strongly punctured, clothed with pale pubescence; head rather large, subquadrate, face, clypeus, occiput and cheeks clothed with long pale pubescence, very dense on clypeus; thorax thinly clothed with a long pale pubescence; scutellum sparsely punctured; tegulæ piceous; wings subhyaline, dusky at apex, upper half of marginal cell fuliginous; legs black, punctured, clothed with pale pubescence; abdomen dark green, shining, rather closely, finely punctured, clothed with a short scattered pale glittering pubescence, long and more dense on basal segment, apical margin of sixth segment reflexed and subsinuate medially, apical segment bidentate at apex. Length .40 inch.

Two specimens. (Belfrage.)

Osmia subfasciata, n. sp.

♀.—Dark blue, closely and strongly punctured; head large, subquadrate sides of face and cheeks clothed with long pale pubescence, apex of clypeus and mandibles with short ochraceous pubescence; thorax above thinly clothed with a short, pale pubescence, that on metathorax and pleura longer and more dense; tegulæ piceous; wings subhyaline, pale fuscous at apex and in marginal cell; legs black, clothed with pale pubescence; abdomen convex, the three basal segments more finely and less closely punctured than thorax, the

apical segments coarsely punctured and thickly pubescent, apical margin of the segments fringed with a short pale pubescence more or less interrupted medially; ventral scopa pale ochraceous. Length .35 inch.

♂.—Smaller; head smaller, the face and clypeus more densely pubescent, antennæ longer, apical bands of abdomen less obvious, and the apical segment bidentate. Length .30 inch.

Three specimens. (Belfrage.)

Megachile fortis, n. sp.

♂.—Black, opaque, densely clothed with a pale yellowish pubescence; face with long, dense yellowish-white pubescence, that on vertex and cheeks thin, that on cheeks beneath short, dense and white; head broad, densely and finely punctured; antennæ entirely black, with apical joint compressed and dilated; pubescence of thorax nearly hiding the surface, that on metathorax long, less dense and paler in color; tegulæ rufo-piceous; wings fusco-hyaline, faintly tinged with violaceous; legs black, with a short yellowish pubescence, each anterior coxa with a long black spine, their femora honey-yellow with a blackish stripe behind where the pubescence is dense and pale yellowish, their tibiæ tinged with honey-yellow within, densely pubescent on outside, the pubescence golden-yellow at tip, their tarsi broadly dilated and fringed posteriorly with dense long yellow pubescence, mixed with brown within, that on upper surface snow-white, first joint nearly as long as tibiæ, of equal width, concave within, and with a line of snow-white pubescence, the anterior edge sharply carinate and blackish, fringed with short dense brown pubescence, second joint as broad as first joint and about one-fourth as long, slightly narrowed towards apex, fringed like preceding joint, third and fourth joints gradually smaller, apical joint as long as two preceding combined, honey-yellow, claws cleft, black at tip; four posterior legs formed alike, the tarsi flat, not much dilated, and fringed with long yellowish pubescence, joints of intermediate tarsi more deeply lobed at apex than those of posterior pair; abdomen about as long as head and thorax, subquadrate, as broad as thorax, densely and finely punctured, first segment deeply and broadly excavated at base, the sides with long yellowish pubescence, apical margin of each segment except last, fringed with a short dense yellowish pubescence, apical segment subtruncate above, not emarginate, beneath tridentate, the lateral teeth rounded, the central one subacute. Length .60 inch.

Two specimens. (Belfrage.) More robust than *femorata*, Smith, the pubescence less dense and paler, the head larger, the apex of antennæ dilated, the anterior legs differently formed and the apex of abdomen not emarginate.

Megachile comata, n. sp.

♂.—Same form as *fortis*, with the pubescence paler, being of a very pale yellowish-white with a faint greenish tinge, except on face where it is pale yellowish-white as in *fortis;* on the cheeks beneath there is a patch of dense snow-white pubescence, and on upper part of cheeks a thin white sericeous pile; apex of antennæ pointed, not dilated; wings hyaline with apical margin pale fuliginous; anterior coxæ each with a long black spine, their femora honey-yellow, with the posterior apical margin black and fringed with a dense

snow-white pubescence, slightly mixed with brownish within, on inner side are two slender oblique blackish streaks, apical margin black, their tibiæ honey-yellow, blackish at base on outer side where the pubescence is pale golden, on the anterior apex there is a small tuft of blackish pubescence and on posterior apex beneath a tuft of long snow-white pubescence, their tarsi pale yellowish-white, with much the exterior appearance of those of *fortis*, with the posterior fringe paler, and black at extreme base beneath, the first joint more convex outwardly and very deeply and longitudinally excavated or hollowed out beneath, the edge fringed with dense blackish pubescence, except on apical anterior edge, second joint rather narrower than first and less than one-fifth in length, third and fourth joints gradually less dilated, claws black at tips; intermediate coxæ each with a black acute spine shorter than those on anterior pair, their femora much swollen, their tibiæ fulvous anteriorly, their tarsi simple and densely clothed with whitish pubescence, posterior legs with pale pubescence, tips of their tibiæ reddish, their tarsi with fulvous pubescence beneath; abdomen shaped as in *fortis*, the pubescence pale greenish-yellow, whitish when viewed laterally, the short, dense apical fringe on second to fifth segments whitish, apex deeply notched centrally, with two or three indentations on each side, beneath the edge is bisinuate on each side; venter with long pale pubescence. Length .55 inch.

One specimen. (Coll. G. W. Belfrage.)

Megachile xylocopoides.

Megachile xylocopoides, Smith, Brit. Mus. Cat. i., p. 189.

One ♂ specimen. (Belfrage.)

Megachile albitarsis, n. sp.

♂.—Black, very densely and minutely punctured; head large, rather broader than thorax, clothed with pale yellow pubescence, very dense and lemon-yellow on face as far up as ocelli, paler on clypeus, on the cheeks it is short and white, very dense beneath, flagellum slightly tinged with brown, apical joint compressed and dilated; thorax with whitish pubescence, dense on pleura and long on sides of metathorax; two spots on mesothorax anteriorly, one behind each tegulæ, and a sutural line before scutellum, of dense pale pubescence; tegulæ dull testaceous on outer half; wings yellowish-fusco-hyaline, dusky on apical margin; anterior legs pale fulvous, their coxæ and trochanters behind black, the former each with a long subacute black spine, their femora behind with long white pubescence, posterior apical margin and two short stripes at apex within black, their tibiæ with short pale golden pubescence, lower edge fringed with long pale pubescence, inner apical margin black, their tarsi dilated, pale yellowish-white, fringed posteriorly with long dense whitish pubescence tipped with black within, first joint as long as tibiæ, dilated at anterior apex, the anterior basal margin fringed with blackish pubescence, three following joints gradually less dilated, the fourth small, apical joint long, of nearly equal width, claws long, tips truncate and black; intermediate coxæ each with a short acute tubercle beneath, their femora anteriorly and at tips beneath, as well as their tibiæ except beneath, fulvo-ferruginous, their tarsi pale yellowish-white, with short snow-white pubescence and fringed behind with long hairs, the first joint flattened, broadly dilated posteriorly, narrowed at base and apex especially the latter, three following

joints small, scarcely dilated, terminal joint long, narrowed towards base, claws cleft and black at tip; posterior tibiæ tinged with reddish outwardly, their tarsi pale yellowish-white, first joint as long as remaining joint combined, of equal width, smooth and shining, fringed on both sides with long pale hairs, remaining joints small, strongly lobed at tip, claws tipped with black; abdomen subquadrate, nearly as wide as thorax, first segment broadly and deeply excavated at base and fringed laterally and posteriorly with long pale yellowish hairs, three following segments with a narrow apical fringe of pale ochraceous pubescence, base of fourth and fifth segments with a band of dense pale ochraceous pile, the apical segment covered with a very dense whitish pile, apical margin emarginate centrally, not deeply so. Length .50 inch.

Two specimens. (Belfrage.) Easily recognized by the whitish tarsi and by the remarkable form of the intermediate pair.

Megachile pollicaris.

Megachile pollicaris, Say, Bost. Journ. Nat. Hist. i., p. 406.

Nine ♂ specimens. (Belfrage; Boll.) This may not be the true *pollicaris*, as Say says nothing about the long, prominent, yellow scale-like process, tipped with honey-yellow, at base of anterior tarsi, and of the intermediate legs being red; otherwise the insects accords well with the description given by Say.

Megachile pugnata.

Megachile pugnatus, Say, Bost. Journ. Nat. Hist. i., p. 408.

Four ♂ ♀ specimens. (Belfrage.)

Megachile disparilis, n. sp.

♂.—Black; face and clypeus clothed with a long, dense whitish pubescence, slightly tinged with yellowish, vertex and cheeks with long, thin, white pubescence, slightly mixed with short black pubescence behind ocelli; head large, as broad as thorax, densely and finely punctured; antennæ black, the terminal joint compressed and slightly dilated; thorax closely punctured, clothed with a long, not dense, cinereous pubescence, longer on metathorax and pleura and slightly mixed with black pubescence on mesothorax; tegulæ dull piceous, pubescent; wings subhyaline, dusky on apical margin; legs black, with short yellowish pubescence, that on coxæ and femora beneath long and white; anterior coxæ with a long, subacute blackish spine, before which is a much shorter, slender, acute reddish double spine, their femora within and their tibiæ at tips tinged with honey-yellow, their tarsi whitish, broadly dilated, with a long dense fringe of white pubescence tipped with yellowish posteriorly, first joint with a long pale yellow scale like process anteriorly, hollow within, the tip of which extends beyond tip of second joint, the tip of which is also prolonged nearly to tip of third joint, posterior margin of the joints narrowly black, the apical angles acute, fourth joint small, scarcely dilated, last joint slender, claws cleft and tipped with black; four posterior tarsi simple, densely clothed with yellowish hair, tips more or less tinged with ferruginous; abdomen rather broader than thorax, sides subparallel, shining, minutely punctured, clothed with very short black pubescence, apical margins fringed with a short white pubescence, first segment deeply excavated at base,

clothed with cinereous pubescence, long and more dense laterally, short and slightly mixed with black at apex, the fourth and fifth segments have pale pubescence mixed with the black and the apical fringe on the fourth segment is long, sides of the segments with long white pubescence; apex deeply excavated centrally, the apical edge notched in the middle, with the edge on either side finely denticulated. Length .50 inch.

Two specimens. (Belfrage.)

Megachile amica, n. sp.

♂.—Black; face and clypeus with long very dense white sericeous pubescence, that on vertex long, thin and greenish-cinereous, that on cheeks short and snow-white, longer beneath; head smaller than usual; antennæ black, apex subcompressed and slightly dilated; thorax above clothed with a long, dense greenish-cinereous pubescence, longer posteriorly, and long and white on pleura; tegulæ with long cinereous pubescence; wings hyaline, slightly dusky at tips; legs with whitish sericeous pubescence, long on femora beneath, each anterior coxa with a short blunt spine, their femora and tibiæ within more or less, and the latter at tips, yellowish, their tarsi pale yellowish, flattened, not much dilated, fringed posteriorly with long snow-white pubescence, that within shorter, coarse, black and dilated at tips, first joint about as long as the three following combined, which are short and decrease gradually in length, claws cleft and tipped with black; intermediate tarsi slender, simple, the basal joint posteriorly with a long snow-white fringe of white hairs, posterior trochanters with a tuft of long white pubescence; abdomen as broad as thorax, slightly narrowed posteriorly, shining, feebly punctured, clothed with a short black pubescence, interspersed with a longer cinereous pubescence, longer and more dense at base, apical margin of the segments with a narrow fringe of dense snow-white pubescence, much longer laterally, apex beneath with long, dense white pubescence, above the segment is gradually rather obtusely pointed, beneath the edge is broadly concave, the lateral angles rather prominent. Length .40 inch.

Two specimens. (Belfrage.)

Megachile exilis, n. sp.

♂.—Small, black, densely and strongly punctured; head large, broader than thorax, face, clypeus and cheeks beneath clothed with long, dense, snow-white pubescence, on the vertex it is very sparse and on cheeks above short, on middle of face and base of clypeus the pubescence is less dense and slightly mixed with dusky; antennæ slender, black, pointed at tip; prothorax, metathorax and pleura beneath with long white pubescence; tegulæ piceous; wings hyaline, more or less dusky at tips; legs clothed with short white pubescence, long on femora beneath, anterior tarsi pale ferruginous, three basal joints flat, dilated, fringed with pale pubescence, second joint shorter than first and rather broader, the anterior margin rounded, third joint much smaller, fourth slender, apical joint long, slender, claws cleft, tipped with black; four posterior tarsi slender, simple, fringed posteriorly with long white pubescence; abdomen convex, sides parallel, not narrowed posteriorly, strongly, not very closely punctured, segments transversely depressed at base, clothed with a very short pale subsericeous pubescence, first segment with a deep shining concavity at base, apex with a marginal fringe of snow-white pubescence, more dense laterally, apical margin of four following segments narrowly

smooth, polished and dull testaceous, with a narrow band of short, dense snow-white pubescence at base, apex broadly rather deeply emarginate, with lateral angles prominent. Length .35 inch.

Four specimens. (Belfrage.)

Megachile facunda, n. sp.

♂.—Robust, black, clothed with a short, rather dense, pale ochraceous pubescence, very dense and whitish on face, clypeus, cheeks beneath and on pleura beneath; head large, broad; antennæ slender, simple; thorax very densely sculptured, pubescence thin on mesothorax, long on metathorax; tegulæ rufo-testaceous; wings hyaline, slightly dusky at tips; legs with pale pubescence posteriorly, smooth and shining anteriorly, four anterior femora and tibiæ within more or less tinged with ferruginous, tarsi slender, simple, fringed behind with long pale pubescence, beneath with short dense yellow pubescence; abdomen broad, about as long as head and thorax, depressed, the segments with an apical fringe of short, dense, pale ochraceous pubescence, long on sides of first segment which is broadly concave at base, basal margin of second and following segments with a band of short dense pale ochraceous pile, which covers the apical segment, the tip of which is deeply notched centrally, the angles acute and directed inwardly, beneath the edge has two short, stout, acute incurved teeth on each side; venter with a long tolerably dense pale pubescence. Length .50 inch.

Four specimens. (Belfrage.) In general appearance this somewhat resembles *comata*, but that species is stouter and has the anterior tarsi dilated.

Megachile frugalis, n. sp.

♂.—Black, opaque; head large, closely punctured, face and clypeus with a long, dense white pubescence, mixed with black on middle of face and base of clypeus, cheeks with long white pubescence, that on vertex long, sparse and mixed with blackish; antennæ slender, black, pointed at tip; thorax opaque, indistinctly punctured, on mesothorax and scutellum the pubescence is cinereous strongly mixed with black and not so dense as to hide the surface, while on the metathorax and pleura it is long, rather dense and white; wings subhyaline, faintly tinged with yellowish, apex fuliginous, slightly violaceous; legs slender, simple, clothed with white pubescence, long on femora behind and dense on tarsi, the anterior pair of which have a long fringe posteriorly; abdomen convex, shining, closely and finely punctured, clothed with short cinereous sericeous pubescence, the segments with a narrow apical fringe of short, dense snow-white pubescence, first segment deeply concave at base, apical segment irregularly concave, the posterior edge compressed, deeply notched centrally leaving a subacute tooth on each side, the lateral edge very irregular, with a short tooth on each extreme side, beneath the edge has a single obtuse central tooth. Length .45 inch.

One specimen. (Coll. G. W. Belfrage.) A very distinct species. The pubescence of the face is curiously arranged, that on the sides is directed laterally, that on the middle upwardly, that on the clypeus except base downwardly, while the black pubescence on base of clypeus is erect and conspicuous.

Megachile gentilis, n. sp.

♂.—Small, black, closely and finely punctured; head large, transverse, broader than thorax; the face as far up as lower ocellus and the clypeus clothed with a long dense pale yellow pubescence, that on cheeks white and long beneath, that on vertex thin and brownish-yellow; antennæ slender, black, pointed at tip; thorax clothed with rather dense cinereous pubescence, long on scutellum, metathorax and pleura where it is white, and short and thin on mesothorax scarcely obscuring the surface; wings hyaline, faintly dusky at tips; legs slender, simple, clothed with white pubescence, long and dense on anterior femora and tarsi behind; abdomen shining, segments 1—4 with an apical fringe of snow-white pubescence, first segment broadly deeply concave at base, clothed posteriorly and laterally with long cinereous pubescence, near basal margin of segments 3—5 a narrow band of whitish pile, sometimes indistinct, apical segment more or less clothed centrally with a patch of dense white pubescence, the apex deeply notched, the sides sometimes more or less denticulated; venter banded with whitish pubescence. Length .40 inch.

Seven specimens. (Belfrage.)

Megachile brevis.

Megachile brevis, Say, Bost. Jour. Nat. Hist. i., p. 407.

Four ♂ specimens. (Belfrage.)

Megachile inimica, n. sp.

♀.—Long, narrow, parallel, black, opaque, densely punctured; head large, subcubical, broad behind eyes, face with dense yellowish pubescence, sparse on clypeus, cheeks beneath with long yellowish pubescence; prothorax, lateral margin of mesothorax, scutellum posteriorly, metathorax and pleura clothed with a more or less dense yellowish pubescence; mesothorax with short sparse blackish pubescence, longer on scutellum; tegulæ rufo-testaceous; wings yellowish-fuscous, darker and subviolaceous on costal tip; legs ferruginous, fringed with yellowish pubescence; abdomen elongate, narrow, obtusely pointed at tip, the segments with a narrow apical fringe of dense short yellow pubescence, otherwise the pubescence above is very short and black; ventral scopa yellow, brown on last segment. Length .55—.60 inch.

Two specimens. (Belfrage.)

Megachile lucrosa, n. sp.

♀.—Same form as *inimica*, with the head more cubical, and cheeks broader; black, clothed with cinereous pubescence; vertex very densely and finely punctured, cheeks with large sparse punctures; face and cheeks beneath with dense cinereous pubescence, which on vertex is sparse and mixed with black; clypeus short, transverse, anterior edge tuberculated; mandibles large, rugose, fringed beneath with long golden hairs; thorax above with short cinereous and black mixed pubescence, on collar, metathorax and pleura it is long, dense and white; tegulæ black, wings pale fusco-hyaline, much darker on apical margin; legs black, the femora with whitish pubescence, long on anterior pair behind, the tibiæ and tarsi with golden pubescence; abdomen shorter than in preceding species, the segments, except last, with a narrow apical fringe of snow-white pubescence which is dense on sides of first segment; ventral scopa pale yellow. Length .55 inch.

One specimen. (Coll. G. W. Belfrage.)

Megachile grandis, n. sp.

♀.—Large, robust, opaque black; head large, transverse, densely punctured; face as far up as ocelli, and cheeks with dense white sericcous pubescence, that above antennæ faintly tinged with yellowish; clypeus with thin cinereous and black pubescence, the truncate tip fringed with yellow hairs, also the mandibles beneath, the vertex has a short sparse black pubescence; thorax very densely punctured, prothorax, mesothorax and pleura clothed with a rather dense white sericeous pubescence, that on mesothorax very short and strongly mixed with black, as well as on scutellum where it is longer; wings more or less tinged with fuliginous, apex darker; legs slender, clothed with short white pubescence, much longer on trochanters and femora beneath, that on tarsi beneath dense and yellow; abdomen about as long as head and thorax, broad at base, slightly narrowed posteriorly, the tip obtuse, the segments above with a very short black pubescence, the first to fifth with a narrow apical fringe of white pubescence, first segment broadly concave at base, sides and apex with rather long cinereous pubescence, apical segment entirely black, the tip with a compressed rounded projection; ventral scopa generally white, sericeous sometimes tinged with yellowish, at extreme apex black. Length .50—.65 inch.

Fourteen specimens. (Belfrage; Boll; Heiligbrodt.) In fresh specimens the ventral scopa is silky white, the yellow tinge being caused by admixture of pollen.

Megachile pruina.

Megachile pruina, Smith, Brit. Mus. Cat. i., p. 190.

Fourteen ♀ specimens. (Belfrage; Boll; Heiligbrodt.)

Megachile optiva, n. sp.

♀.—Short, robust, black, opaque, closely punctured; head transverse, broader than thorax, sides of face and cheeks beneath with long whitish pubescence, above antennæ and on vertex it is long, sparse and black, on clypeus it is thin, white and appressed; prothorax, sides of metathorax and pleura with long, dense whitish pubescence, on mesothorax it is short and black, on scutellum longer and black; wings dusky at tips; legs with short cinereous pubescence, long on femora behind, tarsi beneath with short dense yellow pubescence; abdomen short, broad, obconic, deeply and broadly concave at base, sides and apex of first segment clothed with rather long cinereous pubescence, apical margins of segments 2—5 with a narrow fringe of white pubescence, apical segment obtusely pointed, obscurely pale sericeous, with sparse black hairs; ventral scopa pale yellowish-white. Length .45 inch.

Two specimens. (Belfrage.)

Megachile nupta, n. sp.

♀.—Short, robust, black, clothed with pale ochraceous pubescence; head broad, transverse, the face as far up as ocelli, cheeks beneath and apical corners of clypeus with dense whitish pubescence, on vertex the pubescence is short, sparse and yellowish; clypeus strongly and rather sparsely punctured, shining, with short sparse yellowish pubescence, except on apical corners where it is long and whitish; on prothorax, lateral margin of mesothorax, scutellum, sides of metathorax and pleura the pubescence is dense, long and pale

ochraceous, on mesothorax it is very short and sparse, except in front where it is longer and more dense; wings dusky at tips; legs with short pale pubescence, on tarsi beneath dense and yellow; abdomen broad, obconic, deeply concave at base, sides of first segment and narrow apical margin of segments 1—5 with pale ochraceous pubescence; ventral scopa pale yellowish-white. Length .45 inch.

Three specimens. (Belfrage.) Same size as *optiva*, but less broad, with the pubescence of a different color.

Megachile languinosa.

Megachile languinosa, Smith, Brit. Mus. Cat. i., p. 190.

Twelve ♀ specimens. (Belfrage; Boll.) This is probably the ♀ of *brevis*, Say.

Megachile studiosa, n. sp.

♀.—Small, narrow, parallel, opaque black, head and thorax closely and strongly punctured; head large, not broader than thorax, face and cheeks beneath with dense whitish pubescence; clypeus coarsely punctured, with short sparse whitish hairs; mandibles large; vertex and cheeks with very sparse pubescence; mesothorax and scutellum with very short and sparse black pubescence; a small tuft on each side behind tegulæ, another in front and another beneath, of dense snow-white pubescence, on sides of metathorax, prothorax and pleura the pubescence is long and whitish; wings slightly dusky at tips; legs slender, with short pale pubescence; abdomen as long as head and thorax, sides parallel, above convex, shining, sparsely punctured, clothed with short black pubescence, base broadly concave, apical margins of segments 1—5 with a narrow fringe of snow-white pubescence, that on first segment dilated laterally, apex obtuse; ventral scopa white. Length .38 inch.

Three specimens. (Belfrage.)

Megachile osmoides, n. sp.

♀.—Small, narrow, parallel, black, closely and rather coarsely punctured; head very large, nearly as large as thorax, very full behind eyes, the vertex being unusually long; face and cheeks beneath with dense white pubescence, on clypeus it is short and sparse, while on vertex it is still more so; middle of vertex smooth and shining, with a few large scattered punctures; prothorax, mesothorax anteriorly, a line over tegulæ, scutellum posteriorly, metathorax, and pleura anteriorly and posteriorly, more or less densely clothed with long white pubescence; tegulæ smooth and polished, black; wings hyaline; legs with thin whitish pubescence; abdomen convex, shining, finely punctured, sides parallel, base broadly concave, apical margins of segments 1—4 with a narrow fringe of snow-white pubescence, dilated on sides of first, apex with a very short dense pale sericeous pile, very dense on apical margin of last segment, which is obtusely rounded; ventral scopa pale yellowish. Length .33—.36 inch.

♂.—Head less enlarged behind eyes; face, clypeus and thorax laterally and posteriorly more densely pubescent; apex of abdomen with four broad, prominent, equidistant teeth, the two central ones truncate at tip. Length .33 inch.

Four specimens. (Belfrage.) This resembles certain species of *Osmia* very much in form.

Megachile variolosa, n. sp.

♀.—Very small, long, parallel, much the general form of *osmoides*, but much smaller and more coarsely punctured, head smaller, not unusually enlarged behind eyes; punctures of thorax large, the pubescence much as in preceding species; wings faintly dusky, darker at tips; legs with thin white pubescence; abdomen shaped and clothed as in *osmoides*, except that the apex is not clothed with a pale pile, first and second segments with fine, rather close punctures, on third and fourth segments the punctures are suddenly large, being double the size of those on the two preceding segments, on fifth segment they are smaller and on apical segment small and very dense; ventral scopa white. Length .20—.25 inch.

Two specimens. (Belfrage.)

Anthidium zebratum, n. sp.

♁.—Differs from ♁ *occidentalis*, Cress., only as follows:—Large and more robust, the pubescence on head and thorax more yellowish; pro- and mesothorax immaculate; scutellum with two pale yellowish spots; abdominal fasciæ broad laterally and gradually narrowed in the middle, [illegible] emarginate. Length .55 inch.

One specimen. (Heiligbrodt.) This also occurs in Colorado.

Anthidium interruptum.

Megachile interrupta, Say, Long's 2d Exped. ii., p. 352.
Anthidium curvatum, Smith, Brit. Mus. Cat. ii., p. 215.

Two ♁ ♀ specimens. (Belfrage.)

Anthidium concinnum, n. sp.

♀.—Black, densely punctured; sides of face, narrow anterior orbits and a short line behind summit of eyes, yellowish; sides of face clothed with a pale ochraceous pubescence; thorax more densely punctured than head, finely so on the middle which has a well impressed longitudinal line; a spot on each side of mesothorax anteriorly, a spot on each basal corner of scutellum, its posterior margin slightly interrupted medially, and the tubercles, yellow; postscutellum, sides of metathorax and pleura clothed with a pale ochraceous pubescence, short and pale on pleura; tegulæ ferruginous, with a large yellow spot anteriorly; wings fuliginous, paler centrally and at extreme base, a dark streak through marginal cell; legs entirely fulvo-ferruginous, sericeous with pale hairs, tarsi with short yellow hair, tibiæ yellowish at extreme base; abdomen marked as in *simile*, Cress., the markings being less heavy, and of a pale lemon-yellow color, and the surface more closely punctured; ventral scopa fuscous. Length .35 inch.

♁.—Clypeus and mandibles yellow; basal segment of abdomen tinged with ferruginous, fifth segment with a band similar to that on preceding segment, disk of sixth segment stained with yellowish ferruginous, apical segment pale yellowish, trilobate at apex, middle lobe small. Length .35 inch.

Three specimens. (Belfrage.) Much like *simile*, Cress. (Proc. Ent. Soc. Phil. ii., p. 378), differing principally by the color of the legs.

Anthidium notatum.

Anthidium notatum, Latr. Ann. Mus. Hist. Nat. 13., p. 48, 231.

One ♀ specimen. (Belfrage.)

Ceratina dupla.

Ceratina dupla, Say, Bost. Journ. Nat. Hist. i., p. 397.

Five ♂ ♀ specimens. (Belfrage.)

Nomada texana, n. sp.

♀.—Black; head densely punctured, thinly pubescent; sides of the face and short line behind summit of eyes yellow; labrum, mandibles and three or four basal joints of antennæ ferruginous; thorax densely and coarsely punctured; collar, two spots on scutellum, postscutellum, tubercles, transverse subarcuate mark on pleura and the tegulæ, lemon-yellow; collar prominent especially on each side; scutellum obtusely bituberculate; metathorax not distinctly punctured, the upper surface except the basal triangular space clothed with a dense appressed silvery-sericeous pile; wings subhyaline, the apical two-thirds of costa broadly fuscous, clear at tip of third submarginal cell; legs entirely fulvo-ferruginous, with a pale pubescence, extreme apex of posterior tibiæ more or less yellow, four posterior coxæ with a small yellow spot; abdomen closely and finely punctured, first segment shining, very minutely punctured, each segment, except the last, with a subapical lemon-yellow band, narrow and tolerably even on first segment, broad and much narrowed medially on second segment, very narrow on third and fourth segments, broader laterally, and broad on fifth segment, apical segment with black pubescence; venter varied with ferruginous, the third segment generally with a yellow spot on each side. Length .35 inch.

♂.—Face, clypeus, spot above, labrum and base of mandibles lemon-yellow; abdomen clothed with a pale sericeous pile, apical segment narrow and emarginate at tip. Length .35 inch.

Fourteen specimens. (Belfrage; Boll.)

Nomada lepida.

Nomada lepida, Cress. Proc. Ent. Soc. Phil. ii., p. 288.

One ♂ specimen. (Belfrage.)

Nomada maculata.

Nomada maculata, Cress. Proc. Ent. Soc. Phil. ii., p. 303.

Three ♀ specimens. (Boll.)

Epeolus remigatus.

Melecta remigata, Fabr. Syst. Piez., p. 387.

Epeolus remigatus, Fabr. Cress. Proc. Ent. Soc. Phil. ii., p. 393.

Two ♀ specimens. (Belfrage; Boll.)

Epeolus lunatus.

Epeolus lunatus, Say, Long's 2d Exped. ii., p. 354. Cress. Proc. Ent. Soc. Phil. ii., p. 394.

Fourteen ♂ ♀ specimens. (Belfrage; Boll.)

Epeolus fumipennis.

Epeolus fumipennis, Say, Bost. Journ, Nat. Hist. i., p. 403.

One ♀ specimen. (Belfrage.)

Cœlioxys texana, n. sp.

♀.—Black, head and thorax opaque, covered with large coarse punctures; face and clypeus clothed with a short appressed whitish pubescence, more dense on anterior orbits and anterior margin of clypeus; anterior ocellus placed in the middle of a prominence, on each side of which is a tuft of fuscous pubescence; cheeks clothed with a white scale-like pubescence, the punctures of vertex more or less filled in with whitish scales; two basal joints of antennæ more or less red; thorax with large, close, not confluent punctures, scutellum rounded posteriorly with a rather long robust tooth on each side at base; a line of yellow or whitish scale-like pubescence on anterior margin of mesothorax more or less interrupted into spots on the middle, generally continued narrowly over the tegulæ to posterior margin and sometimes connected with the band in suture at base of scutellum, sometimes there is a longitudinal line of similar pubescence on anterior middle of mesothorax; sides of mesothorax, pleura aud under side of scutellum clothed more or less densely with pale cinereous pubescence, a tuft on each side above behind, tegulæ and two transverse lines on pleura, the anterior one margining the sides of prothorax and in front of tubercles, of dense white pubescence; tubercles tinged with ferruginous; tegulæ fulvous; wings hyaline, apical margins narrowly fuliginous; legs ferruginous, covered with white scales, tarsi black, clothed within with yellowish pubescence; abdomen long, polished, sparsely punctured, those on four basal segments large, close laterally, those on the two apical segments much smaller and closer, narrow basal margin of first segment, narrow apical margins of segments 1—5 and a short subbasal line on each side of segments 2—4, of dense white or pale ochraceous scales, apical segment short, obtusely pointed at tip, the apical margin depressed and rough and fringed with erect black hairs, inferior plate a third longer, broad, of equal width, the apex broadly rounded and fringed with black hairs; ventral segments more or less tinged with ferruginous, the apical margins with white pubescence. Length .40—.60 inch.

♂.—Face and clypeus more densely pubescent; abdominal segments 2—5 each with a subbasal lateral band of dense white scales; apical segment deeply concave above, with a short acute tooth on each side at base, the apex with six short more or less irregular teeth, the upper tooth of lateral pair sometimes obsolete. Length .48 inch.

Ten specimens. (Belfrage; Boll.) Resembles *alternata*, Say, from which it is distinguished by the ferruginous legs, black tarsi, and broadly rounded inferior plate of abdomen.

Cœlioxys edita, n. sp.

♂.—Black, densely, coarsely and confluently punctured; face, as high up as ocelli, and clypeus clothed with a short dense white or pale ochraceous pubescence; anterior ocellus surrounded by a radiating fringe of pubescence; anterior, lateral and middle of posterior margin of mesothorax covered with white or pale ochraceous scales, that on anterior margin dilated into two spots on middle; scutellum beneath, metathorax and pleura clothed with white or

pale ochraceous pubescence, that on pleura short and arranged in two narrow transverse bands meeting beneath and in front of tegulæ; scutellum broadly rounded behind, with a stout subacute tooth on each side at base; tegulæ dull testaceous; wings hyaline or subhyaline, apical margins pale fuliginous; legs entirely ferruginous or fulvo-ferruginous, clothed with pale pubescence, tips of tarsi dusky; abdomen robust, deeply, closely punctured, the second and following segments with a deeply impressed median transverse line, first segment broadly and deeply concave at base, sometimes tinged with ferruginous, the basal margin more dense laterally, the apical margins of segments 1—5, basal margins of segments 5 and 6 and sometimes the transverse impressed lines laterally, covered with a white or pale ochraceous scale-like pubescence; apex with eight short teeth, one on each side of fifth and sixth segments and two pair at apex; venter more or less stained with ferruginous, and banded with white pubescence. Length .35—.45 inch.

Six specimens. (Belfrage.)

Cœlioxys insita, n. sp.

♀.—Black; head and thorax with large coarse punctures, and cheeks and mandibles covered with a short appressed cinereous scale-like pubescence, more dense on face and clypeus, anterior margin of the latter fringed with yellowish pubescence, a tuft of long cinereous pubescence on each side of anterior ocellus; posterior margin of occiput, anterior margin of mesothorax continued beneath tegulæ and narrowly over them, spot behind tegulæ and two spots at base of scutellum covered with a whitish pubescence; scutellum beneath and metathorax clothed with a long dense cinereous pubescence, the pleura has two bands of pubescence as in preceding species; scutellum broadly rounded posteriorly, with a long, blunt, slightly incurved tooth on each side at base; tegulæ dull testaceous; wings hyaline, more or less fuliginous at apex; legs ferruginous, with whitish pubescence; abdomen shining, closely and strongly punctured, sparsely so on posterior middle, first and second segments with a deeply impressed median transverse line, basal sides of first segment, and narrow, even, apical margins of segments 1—5 fringed with short white pubescence, apical segment densely and finely punctured, convex at base, depressed and acuminate at tip which is acute, inferior plate long, narrow, obtusely pointed at tip, much longer than superior; venter banded with white pubescence. Length .40—.45 inch.

Four specimens. (Belfrage.)

Cœlioxys 8-dentata.

Cœlioxys 8-dentata, Say, Long's 2d Exped. ii., p. 353.

Three ♂ specimens. (Belfrage.)

Cœlioxys scitula, n. sp.

♀.—Small, black, shining; head and thorax with large, not close, punctures; face, clypeus, cheeks and posterior margin of occiput clothed with a short dense white pubescence; mandibles tinged with ferruginous; anterior margin of mesothorax, interrupted medially and continued down on each side of pleura, another line on posterior part of pleura, a spot on each side behind tegulæ, suture at base of scutellum and base and sides of metathorax clothed with white pubescence, that on metathorax long; scutellum broadly rounded

posteriorly, with a sharp tooth on each side; tegulæ fulvo-testaceous; wings fuliginous, violaceous, basal half hyaline; legs fulvo-ferruginous, with whitish pubescence, tips of tarsi dusky; abdomen long, polished, sparsely punctured, especially on the middle, transversely rather deeply impressed on each side of segments 2—4, basal margin of first segment, and apical margins of segments 1—5 narrowly fringed with white pubescence or scales, apical segment much depressed at tip which is obtusely pointed and clothed with black pubescence, inferior plate uniformly broad to apex which is rounded laterally, fringed with fuscous or black pubescence and with a small acute tubercle on extreme apex; venter sometimes tinged with ferruginous and banded with white pubescence. Length .35—.40 inch.

♂.—Abdomen with eight short teeth at apex, one on each side of fifth and sixth segments and two pairs at apex the lower ones longer and acute, the segment deeply incised above at tip. Length .35 inch.

Five specimens. (Belfrage.)

Stelis costalis, n. sp.

♀.—Black; head densely and coarsely punctured, face and clypeus clothed with a short, thin whitish pubescence; anterior orbits, broader on each side of face, and a short line behind ocelli, yellow; anterior margin of clypeus fringed with yellowish pubescence; mesothorax and scutellum with large rather close punctures, a line on anterior margin of mesothorax, broadly interrupted medially, and continued narrowly on lateral margin, posterior margin of scutellum and a spot on each basal corner, lemon-yellow; prothorax, sides of metathorax and pleura clothed with white pubescence; metathorax abruptly truncated, the basal margin coarsely crenulated; tubercles and stain beneath tegulæ honey-yellow; tegulæ honey-yellow, with a pale fuscous pupil; wings subhyaline, the costa broadly fuscous from basal fourth to apex, the second recurrent nervure received beyond apex of second submarginal cell; legs entirely fulvo-ferruginous, with short pale pubescence; abdomen elongate, convex, not wider than thorax, three basal segments with large, not close punctures, the apical segments more closely punctured and clothed with a short golden pubescence, first segment with a narrow subapical pale yellowish band squarely indented on each side posteriorly, second segment with a short lateral apical pale yellowish line, third and fourth segments with a narrow subapical band of same color, that on the third squarely indented on each side anteriorly, that on the fourth somewhat undulated, apex broadly rounded, apical margins of the segments narrowly subtestaceous, smooth and shining; venter sparsely clothed with pale hairs, apical segment broadly rounded and clothed with short dense fulvous pubescence. Length .35 inch.

♂.—Clypeus tinged with brown, with a pale yellowish spot on each side; mandibles tinged with ferruginous; a narrow interrupted obscure yellowish line behind ocelli; second abdominal segment with two small distinct yellow spots on apical middle on a line with lateral spot, third, fourth and fifth segments each with a tolerably broad yellow subapical band, indented on each side anteriorly and slightly notched in the middle, the sixth segment tinged with ferruginous, with a transverse apical yellow spot, apical segment black, with a short central tooth, sides not lobed. Length .30 inch.

Two specimens from Bosque and Comal Counties. This has much the appearance of an *Anthidium*, but the ♀ venter is only sparsely pubescent.

Stelis lateralis.

Stelis lateralis, Cress. Proc. Ent. Soc. Phil. ii., p. 410.

Two ♀ specimens. (Belfrage.)

Melecta interrupta, n. sp.

♀.—Large, very robust, black, densly and finely punctured; the face about insertion of antennæ and posterior margin of occiput, the later interrupted medially by black, clothed with long ochraceous pubescence; anterior half of mesothorax, except two black patches on anterior middle, sides of metathorax and upper half of pleura clothed with a dense ochraceous pubescence, remainder of mesothorax and scutellum nude, the latter depressed on posterior middle, with a short obtuse tubercle on each side; a small smooth polished spot on each side of the disk of mesothorax opposite tegulæ; wings dark fuscous, with two hyaline spots at tips of third marginal and discoidal cells and subhyaline streaks in the cells; legs black, the coxæ, knees and tibiæ with more or less whitish pubescence; abdomen robust, convex, velvety-black, impunctured, each segment with a broad apical band of dense appressed pale ochraceous pubescence, broadly interrupted medially, especially on apical segments, and dilated laterally. Length .55 inch.

♂.—Smaller, less robust; a tuft of ochraceous pubescence at base of clypeus: antennæ not longer than in ♀ but much more robust, being unusually thickened; the two patches on anterior middle of mesothorax sometimes obsolete: legs brown-black, the outer side of intermediate tibiæ covered with a short dense ochraceous pile; abdomen as in ♀, except that the bands are more confluent laterally. Length .45 inch.

Two specimens from Dallas and Comal Counties.

Melissodes atripes, n. sp.

♀.—Large, robust, deep black; face, clypeus and cheeks clothed with a dense ochraceous pubescence, the occiput with a long yellow pubescence; tips of mandibles fulvous; flagellum beneath brown; thorax above and triangular patch beneath tegulæ clothed with a short very dense yellow pubescence, longer and paler on metathorax, remainder of pleura clothed with a dense jet-black pubescence; tegulæ testaceous; wings uniformly dark fuliginous, darker along costa; legs entirely black, with jet-black pubescence; abdomen shining, basal half of first segment and narrow basal margin of second segment clothed with a short appressed ochraceous pubescence; on each side of third segment an oblique line of white pubescence; sides of the fourth and the two apical segments clothed with a jet-black pubescence; disk of apical segment broad, rounded at apex, covered with a golden pile, sides reflexed. Length .75 inch.

One specimen. (Coll. G. W. Belfrage.)

Melissodes obliqua.

Macrocera obliqua, Say, Bost. Journ. Nat. Hist. i., p. 403.

Seven ♂ ♀ specimens. (Belfrage; Boll; Heiligbrodt.)

Melissodes Comanche, n. sp.

♀.—Black; face, clypeus, labrum and cheeks clothed with a short dense ochraceous pubescence, the occiput with a long pale fulvous pubescence; tips of mandibles fulvous; flagellum beneath except two basal joints fulvo-testaceous; thorax clothed with a very dense bright fulvo-ochraceous pubescence, darker on mesothorax, longer and paler on postscutellum, metathorax and pleura beneath; a round patch on posterior middle of mesothorax and the scutellum clothed with a dense black pubescence; tegulæ brown; wings pale fuliginous and violaceous at apex, yellowish at base; legs piceous-brown, tibiæ and tarsi densely clothed with a fulvo-ochraceous pubescence, reddish brown within, short on two anterior pairs, long on posterior pair, tarsi ferruginous; abdomen shining, very minutely punctured, basal two-thirds of first segment and sides of apical third clothed with an ochraceous pubescence, narrow basal margin of second segment, and oblique line on each side of second and third segments, and a broad apical band on fourth segment, of short, dense, appressed pale ochraceous pubescence, almost white in certain lights, lateral basal margin of third segment, and basal margins of three following segments of black pubescence, apical margins of two apical segments fringed with long fulvo-ochraceous pubescence, disk of apical segment as in *atripes;* venter piceous-brown, the segments fringed with brown pubescence. Length .80 inch.

♂.—More slender than ♀; clypeus, labrum and spot at base of mandibles yellowish-white; antennæ as long as head and thorax, flagellum fulvo-testaceous beneath; abdomen narrower, less distinctly marked than in ♀, second segment with a broad band of appressed ochraceous pubescence at base and the third and fourth each with a subbasal narrow, arcuate band of ochraceous pubescence, sometimes interrupted on basal middle, leaving only an oblique spot on each side, apical segments clothed with black pubescence; venter clothed entirely with black pubescence. Length .75 inch.

Five specimens. (Belfrage; Boll.) The ♀ of this species closely resembles that of *obliqua*, but the latter species has the pubescence of the pleura and four anterior legs entirely black, the patch of black pubescence on posterior middle of mesothorax is very broad and quadrate, and the second abdominal segment is entirely black except basal margin. The males of the two species are entirely different.

Melissodes texana, n. sp.

♀.—Black; face and clypeus clothed with a short dense pale ochraceous pubescence, occiput and cheeks with dense ochraceous pubescence; clypeus sometimes tinged with brown; labrum with golden yellow hair; mandibles with a fulvous spot or line near apex, sometimes obsolete; antennæ short, black or brown above, more or less varied with brown or testaceous beneath; thorax clothed with a dense ochraceous pubescence, longer and paler on metathorax and pleura, posterior disk of mesothorax and the scutellum more or less nude; tegulæ varies from testaceous to piceous; wings subhyaline, more or less dusky at apex, base sometimes tinged with yellowish; legs vary from piceous to fulvo-testaceous, clothed with ochraceous pubescence when free from pollen which makes the pubescence sometimes ferruginous, sometimes bright yellow; abdomen shining, very minutely punctured, basal half of first segment

clothed with a long appressed ochraceous pubescence; basal margin of second segment, an oblique line on each side dilated laterally, a broad band on third and fourth segments, that on third interrupted in the middle and somewhat oblique laterally, clothed with short dense whitish pubescence; apical segments clothed with black or fuscous pubescence, more or less mixed with yellowish laterally; disk of apical segment rather broad, rounded at apex. Length .55—75 inch.

♂.—Clypeus, labrum and spot at base of mandibles yellowish white; antennæ not as long as head and thorax, brown or testaceous beneath; posterior disk of mesothorax and scutellum thinly clothed with a short black or fuscous pubescence; anterior part of pleura more or less stained with rufo-testaceous; abdomen more densely pubescent than ♀, a double band on second segment confluent laterally, the apical one slightly interrupted medially, and a subbasal band on three following segments, also slightly interrupted medially, that on fifth segment narrow, the color of these bands varies from white to ochraceous. Length .60 inch.

Seven specimens. (Belfrage; Boll.) Smaller than either of the two preceding species, and while the ♀ more closely resembles that of *Comanche*, the ♂ is more nearly allied to that of *obliqua*. The three species are, however, quite distinct.

Melissodes rivalis, n. sp.

♂.—Black, head and thorax clothed with a dense whitish pubescence, that on occiput and thorax above slightly tinged with pale ochraceous; clypeus yellowish-white; tips of mandibles honey-yellow; antennæ as long as head and thorax, brown or pale fulvous beneath, sometimes entirely fulvous; posterior disk of mesothorax and scutellum very thinly clothed with pubescence which is short and generally slightly mixed with black; tegulæ fuscous; wings hyaline, apical margin faintly dusky; legs clothed with short pale pubescence, dense on tibiæ and tarsi and yellowish on latter; abdomen oblong-ovate, convex, shining, minutely punctured, thinly clothed with a short pale pubescence, first segment at base and sides clothed with a rather long, suberect pale pubescence, each segment with a subapical fascia of short appressed whitish pubescence, generally more or less interrupted medially on basal segments, quite narrow on first segment, moderately broad on remaining segments, lateral margin of fourth and following segments carinate, ending in a prominent tooth on fifth and following segments, that on the sixth large and subacute. Length .45—.55 inch.

Five specimens. (Belfrage; Boll) Nearly allied to the ♂ of *menuachus*, but with shorter antennæ and more distinctly banded abdomen.

Melissodes menuachus.

Melissodes menuachus, Cress. Trans. Am. Ent. Soc. i., p. 388.

Twenty ♂ ♀ specimens. (Belfrage; Boll.)

Melissodes intorta, n. sp.

♂.—Black, clothed with a rather dense cinereous pubescence, short on clypeus and labrum and on mesothorax, where it is slightly mixed with black; antennæ shorter than usual, scarcely reaching to scutellum, flagellum testaceous beneath; thorax deeply, rather coarsely punctured; mesothorax posteriorly and scutellum very thinly pubescent, almost nude, shining; the pubescence on metathorax and pleura long and pale; tegulæ piceous; wings hyaline, apical margin faintly dusky; tibiæ and tarsi densely clothed with short pale pubescence, yellowish on tarsi within; abdomen elongate, subconvex, shining, thinly pubescent with short pale glittering hairs which fringe the submargins of the segments, more dense laterally, sparsely punctured, the apical margin of the segments depressed, smooth, impunctured, and narrowly edged with pale testaceous, first segment clothed at base and sides with a suberect pale pubescence; apical segments armed laterally as in *rivalis* except that the teeth on the sixth segment is longer and larger. Length .50 inch.

Two specimens. (Belfrage.) Easily distinguished from the two preceding species by the black clypeus, the short antennæ, the paler pubescence and absence of bands on the abdomen.

Melissodes Belfragei, n. sp.

♀.—Robust, black, clothed with a dense white pubescence, cinereous on occiput and thorax above and short on clypeus which is rather coarsely and confluently punctured; labrum covered with dense ochraceous hairs; mandibles tinged with yellowish at tips; disk of mesothorax thinly pubescent and sparsely punctured; tegulæ fuscous; wings hyaline, faintly dusky at tips; legs with pale ochraceous pubescence, that on tibiæ and tarsi within yellowish or brownish; abdomen broad, depressed, velvety-black, first segment thickly clothed with a suberect cinereous pubescence, second, third and fourth segments each with a rather broad, even, continuous, subapical band of short, dense, appressed, snow-white pubescence, their apical margins smooth and polished, apical margins of two terminal segments with cinereous pubescence, disk of apical segment broad and broadly rounded at apex; ventral segments fringed with long pale ochraceous pubescence. Length .53 inch.

One specimen. (Coll. G. W. Belfrage.) This lovely species is distinguished at once by the three beautiful, rather broad, snow-white bands on abdomen.

Melissodes intermedia, n. sp.

♀.—Short, robust, black; head thickly clothed with pale cinereous pubescence, long on face and occiput on which latter it is ochraceous and slightly mixed with black; clypeus almost nude, rather coarsely and confluently punctured; labrum covered with dense ochraceous hairs; mandibles tinged with yellowish at tips; thorax clothed with a very dense yellowish-ochraceous pubescence, longer and pale on metathorax and pleura, shorter and thin on posterior disk of mesothorax and scutellum where it is more or less mixed with black; tegulæ piceous; wings hyaline, dusky at apex; legs clothed with pale ochraceous pubescence, that on tips of four posterior tibiæ and on all the tarsi within brownish; abdomen short, broad, subconvex, shining, closely and

finely punctured except on apical margins which are smooth, subdepressed; basal half and sides of first segment with suberect pale ochraceous pubescence, base of second segment and apical margins of second, third and fouth segments with a narrow band of short, dense, appressed, white pubescence, more dense at the extreme apical edge of the segments, two apical segments fringed with pale pubescence, disk of apical segment as in *Belfragei;* venter with brown pubescence, whitish at extreme sides. Length .45 inch.

One specimen. (Coll. G. W. Belfrage.) This seems intermediate between *Belfragei* and *honesta* and may be the ♀ of the latter. The abdomen has four whitish bands, there being two on second segment.

Melissodes honesta, n. sp.

♂.—Black, shining; head with long pale pubescence, dense and whitish on cheeks, and more or less yellowish on vertex and occiput; clypeus prominent, punctured, shining, pale yellow, apical margin black; labrum densely pubescent; mandibles tinged with yellowish at tips; antennæ long, reaching beyond apex of first abdominal segment, entirely black; thorax clothed with a dense, rather long pubescence, yellowish fulvous above, and pale on metathorax and pleura, on disk of mesothorax and on scutellum it is thin; tegulæ fuscous; wings hyaline, dusky at apex; legs with whitish pubescence, yellowish on tarsi within; abdomen ovate, convex, shining, finely punctured, apical margins of the segments smooth and polished, first segment clothed with rather long cinereous or pale ochraceous pubescence, the basal half of second segment with very short cinereous pubescence, the second and four following segments each with a rather broad subapical band of short, dense, appressed, whitish pubescence, sides of apical segments unarmed and with long scattered pale hairs. Length .45—.52 inch.

Five specimens. (Belfrage; Boll.)

Melissodes pygmæa, n. sp.

♀.—Small, black, shining, sparsely and finely punctured; face and cheeks with dense whitish pubescence, thinly scattered over clypeus; occiput with long dense ochraceous pubescence; antennæ brown toward tips, the flagellum brown-testaceous beneath; thorax clothed with a rather dense, short, ochraceous pubescence, not entirely hiding the shining surface of mesothorax and scutellum, on postscutellum the pubescence is long and dense, on metathorax and pleura it is pale; tegulæ pale fuscous; wings short, hyaline, nervures and stigma honey-yellow; legs clothed with pale ochraceous pubescence, that on posterior tibiæ and base of tarsi long, dense and more or less tinged with brown, tips of tarsi honey-yellow; abdomen oblong-ovate, first and second segments smooth and polished, the former clothed at base and sides with a suberect pubescence, remaining segments at base with a very short dense brown sericeous pubescence and at apex with a broad band of very short dense appressed whitish pubescence, becoming long on lateral margins. Length .30 inch.

Two specimens. (Belfrage.) This is the smallest species of this genus known to me.

Melissodes enavata, n. sp.

♀.—Robust, black, head and thorax clothed with a dense ochraceous pubescence; vertex smooth, shining, impunctured; clypeus and labrum with coarse shallow punctures; antennæ very short, flagellum brownish beneath; disk of mesothorax and scutellum smooth, shining, impunctured, entirely nude (probably rubbed); tegulæ piceous; wings subhyaline, slightly tinged with yellowish, apical margins dusky; legs thickly clothed with ochraceous pubescence, long and very dense on posterior tibiæ and base of tarsi, tips of the latter ferruginous; abdomen broad, depressed, thinly covered with a short appressed ochraceous pubescence, longer and more dense laterally and especially dense on lateral margins, base and sides of first segment with erect pubescence, apical margin of fifth segment with dense ochraceous pubescence, disk of apical segment narrow, cuneiform, pointed at apex; ventral segments with an apical band of long, dense ochraceous pubescence. Length .54 inch.

Two specimens. (Belfrage.) The pubescence is of a uniform ochraceous color, the antennæ shorter than usual, and the disk of apical segment of abdomen unusually narrow and pointed at apex.

Melissodes spissa, n. sp.

♀.—Robust, black, closely punctured; face and cheeks with rather long, not dense pale pubescence, that on sides of clypeus short and scattered, that on occiput long and yellowish; clypeus densely punctured; labrum with dense ochraceous pubescence; mandibles fringed beneath with long yellowish hairs; flagellum dull testaceous beneath; thorax densely punctured, clothed with a dense yellow-ochraceous pubescence, longer and paler on metathorax and pleura; tegulæ honey-yellow; wings short, hyaline, nervures and stigma blackish; legs clothed with ochraceous pubescence, long and dense on posterior tibiæ and tarsi, apex of the latter pale ferruginous; abdomen shining at base, finely punctured, first segment clothed at base with long ochraceous pubescence, the second and three following segments with very short yellowish-brown pubescence, pale in certain lights and longer on the sides, apical margin of these segments with a rather broad band of short dense appressed pale ochraceous pubescence, in some specimens, where the segments are more distended, the third and fourth segments have each a narrow band of pubescence of same color at base, apical segment with longer dense ochraceous pubescence, the disk broad and flat, rapidly narrowed to apex which is rounded; ventral segments with a band of dense yellowish-ochraceous pubescence. Length .45 inch.

Five specimens. (Belfrage.) Rather smaller than *enavata*, with longer antennæ, punctured head and thorax, and differently ornamented abdomen, with the disk of the apical segment much broader and rounded at apex.

Melissodes pennsylvanica.

Macrocera pennsylvanica, St. Farg. Hym. ii., p. 97.

Four ♂ ♀ specimens. (Belfrage.)

Melissodes brevicornis, n. sp.

♂.—Black, densely punctured; head clothed with a dense ochraceous pubescence, paler on face and cheeks, short on clypeus and labrum which, with base of mandibles, are pale yellow; antennæ short, scarcely reaching beyond tegulæ, pale fulvous, more or less dark above, scape beneath pale yellow; thorax clothed with a very dense fulvo-ochraceous pubescence, paler on metathorax and thin on disk of mesothorax and scutellum; tegulæ pale fulvous; wings rather short, hyaline, slightly tinged with yellowish, apex faintly dusky, nervures and stigma fulvous; legs brown black, clothed with yellowish-ochraceous pubescence, tibiæ and tarsi more or less fulvous; abdomen closely and finely punctured, first segment except apex thickly clothed with a long ochraceous pubescence, narrow basal margin of second segment, sometimes obsolete, and broad apical margins of second to fifth segments clothed with a short, dense, appressed, pale ochraceous pubescence. Length .38—.46 inch.

Three specimens. (Belfrage.) A handsome species, remarkable for the short antennæ.

Melissodes albata, n. sp.

♀.—Robust, black; head and thorax clothed with a dense white pubescence, slightly tinged with yellowish on thorax; clypeus densely punctured, almost entirely nude; antennæ short, flagellum pale brown beneath; tegulæ honey-yellow; wings remarkably short, hyaline, nervures fuscous, costa honey-yellow; legs clothed with white pubescence, that on coxæ beneath and tips of tibiæ yellowish, that on tarsi within fulvous, tip of the latter pale ferruginous; apical margin of abdominal segments dull testaceous, the first segment except apex clothed with a moderately long erect white pubescence, the remaining segments covered with a dense, appressed, satiny-white pubescence, apex tinged with fulvous, disk of apical segment broad and rounded at apex; venter clothed with brown-fulvous pubescence. Length .48 inch.

♂.—Closely resembles the ♀, but is smaller, narrower, the face densely pubescent, the clypeus, labrum and base of mandibles pale yellow, and the antennæ longer than head and thorax; otherwise like the ♀ except the usual sexual characters. Length .35 inch.

Three specimens. (Belfrage.) Very distinct by the white pubescence, that on abdomen having a satiny or silky lustre.

Melissodes ? ursina, n. sp.

♂.—Black, shining, clothed with a dense ochraceous pubescence; vertex smooth, shining, impunctured; antennæ short, not reaching beyond tegulæ, entirely black; thorax very densely pubescent, that on mesothorax tinged with fulvous; tegulæ piceous; wings subhyaline, apical margins broadly dusky, neuration as usual in *Melissodes;* tibiæ and tarsi densely clothed with ochraceous pubescence, long on two posterior pairs, the femora and tibiæ of which are incrassate; abdomen oblong, convex, shining, thickly and uniformly clothed with ochraceous pubescence, which is longer on basal and apical segments and on lateral margins of segments 2—6. Length .48 inch.

Four specimens. (Belfrage; Boll.) Differs from *Melissodes* by the dense villosity of the whole body, by the short antennæ of ♂ and by

the incrassate legs, the posterior pair of which in ♂ have the pubescence nearly as long and dense as in the ♀ of a true *Melissodes*.

Melissodes? densa, n. sp.

♂.—Differs from the preceding species only by the pubescence being of a pale ochraceous color, and that on abdomen less dense. Length .45 inch.

Five specimens. (Belfrage.) It may be that these will prove to be merely faded specimens of *ursina*, although the color is very different and constant in each species.

Melissodes? marginella, n. sp.

♂ ♀.—Robust, black; head clothed with a dense fulvo-ochraceous pubescence, pale on cheeks and slightly mixed with black on vertex and occiput; mandibles narrow, piceous; antennæ alike short in both sexes, the flagellum brownish beneath; mesothorax, postscutellum, metathorax and sides of pleura immediately beneath wings clothed with short dense cinereous pubescence slightly tinged with ochraceous anteriorly; an arcuate line of black pubescence extending from tubercles, around in front of tegulæ, to lateral middle of mesothorax where it is broad or dilated; postscutellum and pleura beneath also clothed with black pubescence; tegulæ piceous; wings subhyaline, neuration as usual in *Melissodes;* legs clothed with sooty pubescence, pale on anterior pair, long on posterior tibiæ and base of tarsi of ♀, posterior femora and tibiæ of ♂ incrassate, tips of tarsi pale ferruginous; abdomen short, broad, clothed with a very short black pubescence, that on base and sides of first segment pale, that on apical margins of segments 2—4 of ♀ and 2—6 of ♂ narrowly and evenly ochraceous, apex of ♀ with longer black pubescence, the disk of apical segment narrow and obtusely pointed at apex. Length .45—.50 inch.

Eight specimens collected in Comal Co. This species in congeneric and closely allied to the *Anthophora taurea* of Say, from which it is distinguished by the pubescence of the head being fulvo-ochraceous instead of cinereous, and by the narrow apical bands of the abdomen being ochraceous instead of white; the thorax of the two species are similarly ornamented. *Marginella* is also found in Mexico.

Anthophora Smithii.

Anthophora Smithii, Cress. Trans. Am. Ent. Soc. ii., p. 290.

Two ♀ specimens. (Belfrage.)

Anthophora texana, n. sp.

♀.—Black; sides of face and cheeks clothed with long dense white pubescence, that on vertex and occiput ochraceous, slightly mixed with black about ocelli; clypeus closely punctured, with a smooth central ridge; mandibles yellowish toward apex; thorax clothed with a long dense pubescence, that on mesothorax and scutellum ochraceous and slightly mixed with black, that on metathorax and pleura white; tegulæ testaceous; wings short, hyaline; legs brown, clothed with whitish pubescence, tarsi testaceous, claws black; abdomen broad ovate, thinly clothed with a pale pubescence, long and dense on sides of first segment, apical margins of segments 1—4 rather narrowly white,

slightly sinuate on each side anteriorly, apex of fifth segment clothed with a dense black pubescence, the sides with long white hairs. Length .45 inch.

One specimen. (Coll. G. W. Belfrage.) Allied to *californica*, Cress.

Anthophora bomboides.

Anthophora bomboides, Kirby, Faun. Bor. Am. iv., p. 271.

One specimen. (Belfrage.)

Anthophora abrupta.

Anthophora abrupta, Say, Bost. Journ. Nat. Hist. i., p. 409.
Anthophora sponsa, Smith, Brit. Mus. Cat. ii., p. 339.

One ♂ specimen. (Boll.)

Xylocopa virginica.

Apis virginica, Drury, Exot. Ins. i., p. 96, pl. 43, fig. 1.
Centris carolina, Fabr. Syst. Piez. p. 357.

Two ♂ ♀ specimens. (Heiligbrodt.)

Xylocopa texana.

♂.—Black; clypeus, spot above, and labrum yellowish-white, vertex clothed with black pubescence, cheeks with, and a tuft between inscrtion of antennæ of pale pubescence; thorax tinged with blue or green, clothed with a short dense pale ochraceous pubescence; tegulæ æneous; wings dusky, subviolaceous, fuscous on apical margins; legs blue or bluish-green, clothed with pale pubescence, posterior pair and tibiæ and tarsi of intermediate pair clothed with black pubescence, basal joint of posterior tarsi long, narrow, with a broad deep groove on outer side; abdomen green or blue-green, shining, finely punctured, subsericeous, first segment clothed with a short, rather dense pale ochraceous pubescence, two apical segments with rather long black pubescence, more or less mixed with pale ochraceous laterally, sometimes the apical margin of fourth segment is fringed with a short ochraceous pubescence. Length .80—.85 inch.

♀.—Black, the head broad, tinged with blue, clothed with short black pubescence, face and clypeus densely punctured, apical margin of the latter depressed, tinged with rufous, vertex and cheeks with large sparse punctures, a short, prominent, blunt tubercle between insertion of antennæ; thorax tinged with green or blue, clothed with a dense pale ochraccous pubescence, more or less mixed with black around the smooth polished disk of mesothorax; pleura beneath clothed with black pubescence; wings darker than in ♂; pubescence of legs entirely black; abdomen blue-green, polished, sparsely punctured, apex clothed with black pubescence, first segment and sides of apex with pale ochraceous pubescence. Length .80—.85 inch.

Five specimens. (Belfrage; Boll.) Quite distinct from *virginica* by the blue or green color and by the pale pubescence at apex of abdomen. In color it approaches *micans*, St. Farg., which is otherwise very different.

Xylocopa purpurea, n. sp.

♀.—Black, with a strong purple reflection, changing to blue and sometimes green in certain lights, especially on thorax and legs, the abdomen more strongly purple, the pubescence short, thin and black; face and clypeus closely punctured, the vertex sparsely so, especially at summit of eyes where there is an oblique indentation, frontal tubercle almost obsolete; cheeks with dense black pubescence; disk of thorax impunctured; wings smoky, dark at apex; pubescence of legs black; abdomen naked above, sparsely punctured, more closely so laterally, apex with black pubescence, having a tuft of white pubescence on each side. Length .75 inch.

Two specimens. (Heiligbrodt.)

Centris lanosa, n. sp.

♂.—Black; head, thorax and basal segment of abdomen clothed with a dense, rather long, ochraceous pubescence, whitish on face and cheeks; clypeus labrum and scape beneath yellow or yellowish-white, clypeus shining, feebly punctured; tegulæ pale testaceous; wings hyaline; legs robust, black, with black pubescence, the anterior pair and sometimes the four posterior tibiæ on outside with pale pubescence; abdomen shining, minutely punctured, with a slight bluish reflection, the segments except first, clothed with a short black pubescence. Length .50 inch.

Three specimens. (Belfrage.)

Apathus laboriosus.

Bombus laboriosus, Fabr. Syst. Piez., p. 352.

One ♀ specimen. (Boll.)

Apathus variabilis, n. sp.

♀.—Black, shining, clothed with short black pubescence; a triangular patch on vertex, mesothorax except posterior disk, scutellum except base and patch in front of tegulæ, clothed with dense citron-yellow pubescence; a slight admixture of yellowish pubescence before ocelli; wings dark fuscous, darker at base and along costa; legs and abdomen clothed with black pubescence, more dense at base of abdomen which is smooth and polished, being very minutely punctured, apex incurved and obtusely punctured. Length .75 inch.

♂.—The pubescence of head and thorax longer and brighter in color, that on thorax above interrupted by a band of black pubescence between the wings, dilated centrally, the yellow pubescence sometimes extending down on each side of pleura; legs sometimes tinged with ferruginous; abdomen sometimes entirely black except a few yellowish hairs on lateral margins of third and fourth segments, sometimes the third and fourth segments except disk and sides of fifth segment are yellow, sometimes the first and sides of fourth segments are more or less yellow and sometimes the first and third entirely, the second except sides, and the sides of fourth and fifth segments are yellow. Length .70 inch.

Five specimens. (Belfrage.) The ♀ differs from *laboriosus* ♀, by the black pleura and black band between the wings. The ♂

varies greatly in the coloration of abdomen, varying from almost entirely black to almost entirely yellow. It is allied to *insularis*, Smith.

Apathus elatus.

Apis elata, Fabr. Ent. Syst. Suppl. ii., p. 274.

Three ♂ specimens. (Belfrage; Boll.)

Bombus virginicus.

Apis virginicus, Oliv. Encyc. Méth. Ins. iv., p. 66.

Two ☿ specimens from Comal Co.

Bombus fervidus.

Bombus fervidus, Fabr. Syst. Piez., p. 352.

One ♀ specimen. (Belfrage.)

Bombus pennsylvanicus.

Apis pennsylvanicus, De Geer, Mém. iii, p. 575.
Bombus americanorum, Fabr. Syst. Piez. p. 346.

Sixteen ♂ ♀ ☿ specimens. (Belfrage; Boll; Heiligbrodt.)

Bombus scutellaris.

Bombus scutellaris, Cress. Proc. Ent. Soc. Phil. ii. p. 96.

Three ♀ ☿ specimens.

Apis mellifica.

Apis mellifica, Linn. Syst. Nat. ii., p. 955.

Six ☿ specimens. (Boll; Heiligbrodt.)

ERRATUM.

Page 174, line 19, before "large," insert "stigma."

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Descriptions of North American NOCTUIDAE.—No. 3.

BY AUG. R. GROTE.

HARRISIMEMNA, n. g.

Harrisimemna sexguttata.

Thyatira? sexguttata, Harris (in letters to Doubleday) Correspondence, pp. 174, 245.

Grammophora trisignata, Walker.

The characters drawn from the young of this species discovered by Harris, in his correspondence with Doubleday and Miss Morris, are very peculiar. The larva seems to mimic that of the Diurnal Basilarchia. I have observed it on Staten Island; Mrs. Bridgham has reared the species at Seekonk, Rhode Island. The perfect insect is allied to, but generically distinct from Moma *Hübn.* It cannot be referred to Thyatira or to the Cymatophorini, from the course of the costal nervure of the hind wings. It differs throughout from Polygrammate *Hübn.* (*Grammophora*, Guenée), to which Mr. Walker refers it under a specific name which I the more readily discard since it is preoccupied in this family for a species of Hadena.

An unusual feature in the imago is offered by the disproportionately large brown tuft on the dorsum of the 4th abdominal segment. It would be interesting to compare the location of the body tufts in the larva and the perfect insect. Another feature in Harrisimemna is the embossed clypeus which doubtless facilitates the escape of the moth from the chrysalis.

CHARADRA, *Walker.*

Charadra propinquilinea, *Grote.*—♀.—Size of C. deridens from which it differs at first sight by the propinquity and subparallelism of the median lines, which are not joined at the centre of the wing as in our usual species. Whitish or bluish grey. Median lines distinct, propinquitous, subparallel, excavate. T. a. line twice outwardly produced opposite the cell, and once inwardly on internal nervure. Orbicular round, evident, filled with whitish, with a central dark dot. Reniform contiguous to t. p. line, incompletely ringed with a central dot. Median shade apparent above and below orbicular, where it runs approximate to t. a. line. Subterminal space very wide; s. t line apparent at costa, afterwards faint, scalloped. The whitish frosting of the wing becomes lost externally. An interrupted terminal line

formed by interspaceal white and following blackish dots. Secondaries smoky, dark along external margin. Head and thorax whitish. Tegulae with black marks. Beneath the legs and thorax are clothed with whitish hair. The wings show double faint shaded darker transverse bands. *Expanse* 40 m. m. *Length of body* 15 m. m.

Habitat.—Rhode Island.

ARZAMA, *Walker.*

Arzama vulnifica. *Grote.*—♂ ♀.—Differs at once from A. densa and A. obliquata by its dusky yellow color. The antennal pectinations are notably shorter in both sexes, especially when compared with our Eastern *obliquata*. The style of ornamentation is similar. On the entirely obscure yellow ground color of the wings the transverse lines are more distinct than usual, obscure ferruginous. About the large oblique reniform is a dull leaden stain accompanying the angulated median shade. T. p. line narrowly and evenly lunulated. Terminal space irregularly stained without the s. t. line. Secondaries of a uniform dull red or warm brown tint. Thorax concolorous with the fore wings. Beneath the yellowish wings show a reddish tinge and are crossed by faint reddish transverse common lines and have shaded discal dots. *Expanse* 38 to 40 m. m.

Habitat.—Pennsylvania.

Less robust than A. obliquata and with the anterior wings more rounded posteriorly.

HELIOTHIS, *Ochsen.*

Heliothis proruptus. *Grote.*—♂ ♀.—Belongs to the section of the genus which may retain Hübner's term Melicleptria, and which includes H. villosus. The female has a salient oviduct. Blackish with rusty hairs about the thorax. Over both wings stretches the yellowish-white median space as a wide band margined on the primaries distinctly by the usual median lines; the t. p. outwardly projected opposite the cell. Fringes on the secondaries white, on the primaries dusky. A faint discal spot and faint diffuse stained median shade on primaries. Beneath as above the median spaces are nearly white and the discal spot is black and extends to costa. *Expanse* 24 m. m.

Specimens were brought by Lord Walsingham from California and are now in the collection of this Society.

XANTHOPTERA, *Guenée.*

Xanthoptera coccinifascia. *Grote.*—♂.—Anterior wings bright straw-yellow. From the middle of the costa an intensely bright rose-red marginal band runs to the base of the wing and is continued over the prothorax. The head and appendages are rose-red. An oblique rather broad and somewhat irregularly margined shining rose-red band runs inwardly from costa to internal margin, originating about midway between the extremity of the costal marginal band and the tip of the wing. There is a minute cellular dot on the inner edge of this transverse band. The rose-red fringes appear as an even terminal continued band. Thorax concolorous with fore wings. Hind wings

pale, dusted outwardly with darker and obsoletely rosy scales; fringes very pale. Beneath pale; the primaries almost entirely covered with dark ferruginous scales which are more diffusely scattered over the hind wings. *Expanse* 18 m. m.

My types are from Texas; I believe, however, that I have seen specimens from Pennsylvania and the Middle States. I regret not to be able to identify both sexes of this pretty species.

Xanthoptera rosalba. *Grote.*— ♂ ♀.—Obscure yellow. Anterior wings with the costal stripe of X. coccinifascia, but its color is pale rose and is not so brilliant. As in that species the stripe extends over the prothorax, and the head and appendages are of the same hue. An oblique but broader transverse pale rosy band extends across the wing as in the preceding species; it is narrowly succeeded by the ground color of the wing, and then there is a second similar stripe taking the place of the usual subterminal line; behind this the wing is again obscure yellow to the pink fringes tipped with white, but the colors are not contrasted, and the whole terminal portion of the wing beyond the first oblique transverse band appears diffusely washed with pink. Hind wings dark, narrowly and evenly pink along the terminal margin and within anal angle; fringes tipped with white. Beneath dusted with pink scales on a discolorous ground. Thorax concolorous with fore wings above. *Expanse* 22 m. m.

Habitat.—Pennsylvania; Massachusetts.

In case of the disintegration of M. Guenée's genus, I propose that the generic term be restricted to Xanthoptera nigrofimbria, *Guenée*, from the Atlantic District as the type. It will then, I think, naturally include the foregoing species.

Xanthoptera fax. *Grote.*

A small species with hairy thorax and allied to X. semiflava *Guenée*, which Prof. Glover has found in Florida, feeding on Scarracenia as figured by Abbot. Both X. semiflava and X. semicrocea have been received from Georgia from Mr. Ridings, and the latter from Texas, collected by Mr. Belfrage. The present little species has the head and thorax very bright orange-yellow, contrasting with the other parts in color. Both wings and abdomen are deep brownish-black above and below, without markings, almost dead black. On the primaries, however, over the basal two-thirds, may be detected a sprinkling of orange-red scales which do not contrast very strongly nor take on any defined shape, though massed in patches, more obviously twice on the cell. The fringes are concolorous with the wings, but are *tipped shortly with orange-red.*

This little species, only in two specimens before me, was brought by

Mr. Ridings from Georgia. It may be found to vary, as neither of its allies are constant, but its characters are so simple that I should think its identification would be always ready. It expands only 12 m. m.

ERASTRIA, *Treits.*

Erastria mitographa, *Grote.*—♂ ♀.—Grey with obscure olivaceous shades, finely sprinkled with black scales. Head and collar discolorous, obscure yellowish. Thorax grey. Fore wings with two distinct median lines very even. T. a. line deep bright olivaceous, with a pale following inner shade, broken by an inward angulation on the cell below costa, thence evenly inwardly oblique to internal margin. Reniform ill-defined, medially constricted, pale, with dark superposed included dots. Behind the reniform, the median space is shaded with obscure olivaceous. T. p. line resembling the t. a. line in color, succeeded by a coincident pale shade, outwardly acutely angulate on the subcostal nervures, thence evenly inwardly oblique to internal margin. These two median lines are parallel inferiorly, tolerably approximate, narrowing the median space. Subterminal shaded line vague, following the shape of external margin. Terminal space darker shaded outwardly. Faint ante-apical costal pale marks. Terminal line pale, very fine and continuous. Fringes dark at base, pale exteriorly. Terminally the wing shows the same bright stain that characterizes the deep olivaceous median lines. Hind wings obscure greyish without perceptible markings. Beneath the fore wings are washed with blackish from the base outwardly over the middle; hind wings pale, both pair tinted with obscure yellowish or ochreous, with double shaded common lines and pale fringes. Abdomen untufted above. *Expanse* 21 to 22 m. m.

Habitat.—Central Alabama, in August.

The prominent median lines are very distinctive. With the following similarly sized with E. muscosula.

Erastria malaca, *Grote.*—♂ ♀.—Slight-bodied, the labial palpi a little longer than in E. mitographa. Pale with a purplish reflection, with ochrey-brown shades and diffuse ornamentation. Head and appendages and collar discolorous, obscure yellowish or ochreous. Fore wings acute at apices: external margin somewhat sinuate, well produced medially. Fore wings pale from base to median shade; t. a. line diffuse, a little irregular, broadly marked on costa. Between the median shade and the t. p. line the median space is filled in with ochrey brown obscuring the reniform spot; this latter darker ringed with a brighter centre. T. p. line tolerably distinct and linear, followed by a coincident pale shade. It is even, roundedly projected opposite the disc, subsinuate. Ante-apical pale costal dots. Terminally the wing is diffusely washed with brown. A pale oblique apical shade, below which the vague undulate diffuse dark subterminal line is visible. Terminal line very fine and dark, continuous; fringes dark. Hind wings as in E. mitographa, without markings; fringes pale. Beneath with ochreous tint, primaries blackish over the disc, with discal dots and faint common lines. Abdomen untufted above.

Labial palpi somewhat projected, compressedly scaled, third article continuous. *Expanse* 20 to 22 m. m.

Habitat.—Pennsylvania (Philadelphia).

I am not certain of the generic position of these two species; they have the outline of the genus and the size, but the abdomen is bare of dorsal tufts. The rather longer, compressedly and more lengthily scaled, squarely terminated palpi of E. malaca, are distinctive.

The following is a list of the North American species of Erastria hitherto described, all of which are known to me in nature, and represented in the collection of the American Entomological Society:

ERASTRIA, *Treits.*

nigritula, *Guenée.*
Miana undulifera, Walk.
carneola, *Guenée.*
synochitis, *G. & R.*
muscosula, *Guenée.*
musta, *G. & R.*
albidula, *Guenée.*
mitographa, *Grote.*
malaca, *Grote.*

In the British Museum Lists two species referred to Erastria are described under the specific names of *rubicunda* and *inscripta*. The first of these species belongs to the genus Callopistria, and I believe was previously described by Guenée under *Eriopus*. The second is a re-description of Herrich-Schaeffer's Bryophila teratophora.

MARASMALUS, *Grote.*

Marasmalus histrio, *Grote.*—♂ ♀.

Eleven specimens from Texas and New York belong, undoubtedly, to a second species of this noticeable genus. It is perhaps a little smaller than M. ventilator. The general color is very different, being darker and of slaty grey. The usually confused and imperfect markings of the primaries can with difficulty be compared; from the darker color they are less obvious than in M. ventilator. A ferruginous patch appears subcostally margining inwardly the inception of the subterminal line, where, as in M. ventilator, it extends downwardly opposite the reniform spot. This latter is expressed in M. histrio by a single black dot. Base of the wing shaded with ferruginous inside the arcuate geminate t. a. line. The hind wings are very dark and want the ferruginous patch on the external margin, while beneath there is no similar patch on the fore wings subcostally before the apices as in M. ventilator. The whole insect wants the more lively variegated appearance of M. ventilator. A notable difference is at once apparent in the

antennae, which are very shortly pectinated in the male M. histrio and simple in the female; whereas in M. ventilator, of which I believe I have both sexes before me, the pectinations are twice as long in the male as in the new species, while in the female M. ventilator they seem very little shorter than in the opposite sex. I have omitted giving the expanse of the male specimen of M. ventilator in my original description. It is 32 m. m. M. histrio expands in both sexes 25 m. m., while some of the specimens, which offer no other difference, are a trifle smaller.

PTERAETHOLIX, *Grote.*

A very remarkable genus, characterized by a large pellucid impression near the base of the discal cell on the male primary wing, a feature wanting in the opposite sex. An analogous, though not corresponding, feature characterizes the genus Heliocheilus. The species is rather small, glistening, pyralidiform in appearance and seems to me related to Anomis.

The male primary wing shows a large naked impressed spot at the base of the discal cell; underneath, the edges, especially outwardly, are overlapped by the tegument. On neither surface are there any hair or scale tufts. The median vein is bent downwardly in a curve at base to make room for the impression, and thus widens here the discal cell. The median nervure is four branched; 2 from the middle of the nervure, thrown off just beyond the downward curve of the nervure; 3, 4 and 5 approximate at base; 4 nearer 5, the latter not independent but springing from the extremity of the nervure on a line with the origin of 4. Cell incompletely closed by a fold. A small subcostal accessory cell from the lower angle of which 6 is thrown off on to the margin; 7 and 8 arise together from the outer angle of the cell; 9 out of 8 to apex; 10, 11, 12 are aggregated. Hind wings with two internal veins (1 and 1*a*). Median vein three branched; 3 and 4 eminating from one point; 5 entirely independent; cell open; 6 and 7 arising together on a line with or opposite 2.

This neuration approaches the pyralidous type, but it does not agree. The accessory cell and the origin of nervule 6 on the primaries, the position of 5 and the presence of but two internal nervules on the secondaries are distinguishing points. The sexual pellucid impression on the primaries differs essentially from that offered by the pyralid

genera Cnaphalocrocis or Crocidophora. Our insect is undoubtedly a Noctuid.

The female primary entirely wants the characteristic pellucid spot of the male.

The wings are in either sex closely scaled, entire, while the character of the subobsolete ornamentation is Noctuidous. The primaries have straight costal edge, slightly rounded at base in the male, somewhat produced apices and very slightly sinuate external margin; hind wings full and rounded.

Antennae simple in either sex, fine and reaching to apical third. Palpi moderate, porrect, free from the front which they do not exceed, shortly scaled. Legs proportioned, slender, rather closely scaled; hind tibiae with two pairs of terminal spurs. Abdomen linear, with minute tufts on the dorsum at base; in the male exceeding the secondaries with moderate genital tufts; in the female as long as the hind wings with a pointed termination.

Pteraetholix bullula, *Grote.*— ♂ ♀.—Reddish-brown mixed with blackish scales. In appearance the primaries, though not so highly colored, remind us of Perigea xanthoides. The color is brighter in the male and in either sex more or less broken by the admixture of dark scales. The ordinary lines are hardly to be made out. In the best marked ♂ specimens they are indicated by blackish scales when the t. a. line may be detected below the discal impression, the t. p. line inwardly curved below the median nervure and the subterminal, a little irregular, issuing from, or rather margining inwardly at costa, a more or less evident apical white shade. A series of whitish costal dots usually distinct. The most prominent feature of the ornamentation of this species and one which unites both sexes is the prominent white or whitish reniform spot. In one ♂ specimen before me though, this spot is filled with dark scales, but this is evidently unusual, as in six others it is distinct and white. Secondaries dark with a median continued line edged outwardly with whitish; fringes on both wings pale or whitish. Beneath rather pale, finely irrorate; primaries with a blackish shade over the disc; secondaries with a minute black discal dot and a very narrow, finely undulate median black line. Head and thorax like primaries above. The female is darkest, less reddish and more obscurely ornamented. *Expanse* 19 to 22 m. m.

Habitat.—Central Alabama in September.

SPARGALOMA, *Grote.*

Ocelli. Antennae shorter than usual, simple, in the male shortly ciliate. Head rather broad and impacted; front square with projecting frontal scales; clypeal surface somewhat medially depressed. Tongue moderate. Labial palpi about three times as long as the head, projected; 2d joint twice as long as the third, thickly scaled, pro-

jected obliquely forward; 3d joint prominent, porrected, closely scaled, held at nearly right angles with 2d. Legs moderate, middle tibiae with terminal, and hind tibiae with middle and terminal pairs of unequal, rather blunt and weak spurs. Wings ample; anterior pair straight along costal edge, with acute apices and medially exerted on external margin; hind wings full and rounded, a little medially exerted on external margin, with longer fringed and folded internal margin. Fore wings 12-veined; cell open, 3, 4 and 5 approximate at base, 5 not independent but joined to the nervure a little within (or nearer the base of the wing) the origin of 4, opposite the origin of 3. An accessory cell from the lower angulation of which 6 is thrown off on the external margin; 7 and 8 near together at base from outer extremity of discal cell, divaricating; 8 to apex, 9 out of 8 to costa, 10 out of upper margin of accessary cell near 8, 11 out of nervure at basal third. Hind wings 8-veined, 3 and 4 together; 5 removed, not independent, arising from a weak cross vein joining the nervure; cell open, 6 and 7 divaricate from one point opposite 5.

In the body parts and subangular wings with resemblances to Pangrapta, this is one of the genera lower than Drasteria, preparing us for the deltoidous type of the family. The ornamentation is continuous on the upper surface of both wings in darker lines and shades. The first species is the type of the genus. The abdomen does not exceed the anal angle of hind wings.

Spargaloma sexpunctata. *Grote.* — ♂ ♀. — Dark violet-grey with smoky-brown lines and shades. At base the fore wings have double irregular perpendicular transverse brown lines, not defined nor contrasting with the even violet-grey ground color which extends unbroken to the middle of the median space, there margined evenly obliquely by a dense smoky-brown shade which fills the median space outwardly, beyond the m. shade, and obscures the reniform spot. Orbicular a minute dot on the cell not always perceivable. Transverse posterior line dentate and irregular, inconspicuous. Subterminal line distinctive, geminate, with whitish included shade; the component lines divaricate at costa and enclosing a subtriangular brown shade, margined by whitish scales at costa, and on the interspaces below this are three small subtriangular coal-black spots or marks, very evident, resting on the inner component line of the subterminal, while a very few black scales appear opposite each mark beyond the line. Externally the ground color of the wing is a little paler than basally and a fine broken terminal line (continued on the secondaries) is interspaceally evident. The concolorous hind wings are mostly smoky-brown from the base to the continued subterminal geminate line with its included pale shade, beyond this the terminal space is concolorous with that of the primaries. The transverse posterior line and the inner marginal

line of the median shade of the primaries are more faintly continuous over the hind wings. Beneath both wings are pale ochrey-grey, with triple exterior faint and denticulate transverse lines and with the internal margins very pale. Body parts above concolorous with the violet-grey of the wings. *Expanse* 26—27 m. m.

Habitat.—Pennsylvania.

Easily recognized by the three black marks on the subterminal line of primaries, reminding us somewhat of Drasteria.

Spargaloma umbrifascia, *Grote.*—♂ ♀.—Pale brownish or smoky testaceous grey, dust color; lines dark. T. a. line somewhat oblique even, outwardly exerted. The median space shows a broad blackish shade contiguous to the t. p. line, discontinued within the line superiorly. Discal dots minute. Outside of the t. p. line a fainter brownish (in one specimen, Texas, somewhat plumbeous) shade runs from costa before apex to internal margin, meeting t. p. line opposite the cell where the first inner black shade is discontinued. Subterminal line, from apex to just within internal angle, dentate with pale preceding shade. A fine blackish terminal line equally or more distinctly continued on hind wings. Hind wings paler from the base to the double distinct minutely dentate divaricate subterminal line with an interior and preceding pale shade. Three lines cross the middle field of the wing of which the central line is most distinct, the inner line includes a discal mark. Beneath with an ochrey cast; the ornamentation of upper surface incompletely reproduced. Above the primaries show a series of anteapical costal pale points and the transverse lines are incepted from dark dots. *Expanse* 22 to 25 m. m.

Habitat.—Philadelphia; Texas (Belfrage leg. 24th March).

The Texas specimen is smallest and best marked.

CLEPTOMITA, *Grote,*

The male antennae are ciliate, thickening a little toward and bent at basal third. Head rather large; clypeal surface prominent. Labial palpi twice the highth of the front, free, porrected, bent over, sickle-shaped, closely scaled, 3d joint half as long as second with which it is continuous. Fore legs rather short; fore tibiae relatively stout, tarsi slender, femora fringed with long testaceous hair. Hind tibiae with a disproportionately long middle spur and shorter unequal terminal spurs. Size small; wings like Zanclognatha in shape; primaries with nearly parallel costal and and internal margins; hind margin nearly straight. The ornamentation is like that of Zanclognatha, but the lines are black, broad and contrasting. I have only one specimen which I cannot examine neurationally, but it is useless to refer it to Herminia of Authors, a genus that must be resolved into many.

Cleptomita atrilinecella, *Grote.*—♂.—Pale testaceous brownish. Primaries crossed by three black broad distinct lines. The transverse anterior

even, perpendicular, broad. The transverse posterior narrow superiorly, exerted slightly beyond the disc where it is slightly medially notched, more broadly marked below the s. m. nervure, even. Subterminal line very broadly black, the s. t. space deepening in color to the line, followed by a very pale shade (as are the first two lines), even, a little inwardly arcuate, arising on costa before apex and reaching internal margin within the angle. Terminally the wing is darker, more brownish. Hind wings a little paler, crossed by two ill-defined darker shade bands. On primaries a relatively large rounded black discal spot in the place of the reniform. Beneath pale with double common lines, the subterminal marked towards costa on both wings, and discal dots. Body parts rather pale. *Expanse* 22 mil. *Length of body* 10 m. m.

Habitat.—Texas (Belfrage leg. 27th April).

PHALAENOSTOLA. *Grote.*

A geometriform genus with long ample wings and linear slight body parts, very long labial palpi, frail in appearance. Primaries twice as long as wide, depressed towards the apices, 12-veined; cell open; 2 out of s. m. nervure at about outer third; 3, 4, 5 near together, 3 about twice further from 4 than 4 from 5, the latter not independent; a narrow accessory cell from the lower angle of which 6 is thrown off to external margin; 7, 8, 9 near together at base from outer end of accessory cell; 8 from apex of cell to costa just before the real tip; 9 out of 8 to costa a rather long furcation; costal nervules somewhat depressed, hind wings 8-veined; 5 removed at base from 3 and 4 (which are thrown off together) but not independent, joined to the nervure by a weak cross-vein. Head very small, ocelli apparently wanting. Antennae rather short, in the male serrate or shortly pectinate, ciliate, slightly swelled at the base, the serratures diminishing towards base and tips; in the female simple. Eyes large. Labial palpi long, directed obliquely forwards, divaricate, loosely scaled, third joint perhaps a little less than half the length of second. Legs slight, closely scaled, hind tibiae with double pairs of spurs. The ornamentation is not unlike Philometra, geometer-like; the wings are diffusely shaded and show the usual narrow transverse lines. The abdomen is linear, fully as long as the anal angle of secondaries, not broader than the narrow, short thorax, untufted; slender, long and pointed in the male, a little shorter and heavier in the female.

Phalaenostola larentioides, *Grote.*—♂ ♀.—Dark smoky-brown, in fresh specimens with a faint olivaceous tinge and light purplish reflection. The wings have a broad mesial deeper shade on the median space obscuring the annulate reniform and a similar deep shade precedes the irregular subterminal line. T. a. and t. p. lines dark and narrow, a little irregular, the t. p.

line a little exerted opposite the cell, subsinuate. Subterminal line with a central atomical whitish line, a little irregular, well marked on costa, twice slightly outwardly roundedly exerted on s. c. nervules and on s. m. nervules. Secondaries like primaries; two lines cross the wings continuous with the t. p. and subterminal lines of primaries and like these in appearance. The same dark shade precedes the subterminal; within the inner line is a faint discal streak. Beneath the wings are more distinctly lined. Two exterior common lines cross the wings; the outer whitish, on the primaries even, apparently minutely lunulated, on the secondaries prominently outwardly acutely projected opposite the cell; the inner dark and very approximate to the concolorous discal marks, especially on the fore wings. Body concolorous. Legs dark; tarsi pale, somewhat ochrey. *Expanse* 20—22 m. m.

Habitat.—New York (Hastings, June 20th); Pennsylvania. Eighteen specimens examined.

Phalaenostola citima, *Grote.*—♂.—A single specimen indicates a distinct species. Larger and of a paler brighter brown. Ornamentation of P. larentioides, but the t. p. line is more irregular and proportionally nearer the subterminal. Median shade more diffuse, but the similar shade before the subterminal in its congener is here reduced to a narrow limit, and appears most prominent within the inflections of the line. The secondaries are more uniformly dark and the pale edging of the subterminal line toward anal angle more conspicuous. Beneath the two common lines are notably more propinquitous than in P. larentioides. On the primaries the faint discal dot is smaller and much removed from the line, whereas in its congener the broader discal mark is nearly absorbed by the line, which latter is more bent and narrower in P. citima. The outer line on the hind wings is not projected and on both wings less pale and continuous than in P. larentioides. *Expanse* 25 m. m.

Habitat.—Virginia.

RENIA, *Guenée.*

It will be easy to distinguish R. restrictalis from R. larvalis, with which it agrees in ornamentation and general hue, if we observe the greatly shorter and recurved labial palpi of the female In R. larvalis the female labial palpi are extended forwards and are as long as in R. brevirostralis ♀. The ♀ antennus is shorter from the base to the tuft in R. restrictalis than in R. larvalis: the form is narrower, the general color darker and more glossy. It will be impossible to use the labial palpi for generic characters in Renia, owing to their variable length and position in nearly allied species. It is different with the antennae; all the species have that peculiar erect tuft in the male at about apical third, beyond which the slender tips are curled; from the base to the tuft the male antennus is notably rigid. I have elsewhere separated the species into two groups from the character of the trans-

verse posterior line. It is irregular, single, wavy and more are less indistinct in the first seven species I have hitherto described; two of which are referred by me with some hesitation to the genus, but I hesitate merely because I do not know the males. In the second group the transverse posterior line is double or has a succeeding pale shade; it is even, distinct and roundedly bent much as is usual in the family. I find, however, that I have been wrong in assigning *two* species to this group. As yet it only contains a single one which must retain the name of Renia Belfragei, since the differences on which I founded a description of *R. pastoralis*, are caused by the faded condition of the specimens. The description under the latter name must be erased, although it stands first, because it does not apply to specimens of the species in perfect condition. I have specimens of R. Belfragei before me from Pennsylvania and Texas, and have taken the species myself in Alabama.

PHALAENOPHANA. *Grote.*

A geometriform genus, slight bodied, with frail ample wings and long recurved labial palpi. Anterior wings straight along costa, tips depressed, with full external margin; 12-veined; no accessory cell; 3, 4, 5, approximate and nearly equidistant at base, 5 attached; cell open; 8 to costa just before tip; 9 out of 8 to costa; 10 out of 8 to costa midway between the origin of 7 (thrown off below) and 9 (thrown off above); 6 thrown off below a little within 7. Hind wings rounded 8 veined; 5 weak nearly independant, thrown off from a weak cross vein much within the origin of 3 and 4 which spring together from the extremity of the nervure; cell open. Antennæ short, simple in the female, the joints provided with very fine bristles in the male. Labial palpi thrown arcuatedly backwards above the head, free, nearly attaining the thorax; basal joints porrected, ascending; third joint reflexed; in the male more thickly scaled. I do not detect ocelli. Eyes rather large; head somewhat restricted behind. Maxillae rather short and weak. Thorax narrow; abdomen linear, not tufted, as long as internal margin of hind wings. Legs closely scaled; male fore legs shorter, fore tibiae a little thickened and outwardly thickly scaled; middle tibiae with terminal and hind tibiae with two pair of spurs. In ornamentation the insect resembles the Geometridæ quite strongly.

Phalaenophana rurigena, *Grote.*—♂ ♀,—Fresh speeimens are rather bright and deep olivaceous testaceous grey. The speeies seems to lose easily its deeper eolor and most of my speeimens are faded pale dusty testaceous. T. a. line even, distinet, nearly perpendicular, a little outwardly arcuate, followed by an outer dark shade, and with an inner quite pale and contrasting shade which seems to preeede the line, but in reality in fresh speeimens is seen to be the broad included shade of the t. a. line, since a very fine transverse line may be detected before it. Median shade line continued, undulated, linear. Orbicular a faint shaded point concolorous with the darker m. shade and lines. Reniform consisting of two blaek superposed sometimes connected points surrounded by a pale shade; in its shape the spot is constricted outwardly. T. p. line tolerably distinet, shortly and evenly waved, nearly perpendieular and not exerted, followed by a elear pale shade, which, in reality, is the ineluded shade of the obsoletely geminate line. Inner portion of the subterminal spaee pale and contrasting with the wider dark olivaeeous portion which is margined outwardly by the evident subterminal line. This latter is inwardly somewhat aeutely projected opposite the cell, running outwardly again over median nervules, narrowly rivulous with a preceding pale shade. Terminal space elearer griseous without olivaceous east and with an obliquely ascending series of interspaceal dark shade streaks to the apex; the apieal streak alone usually evident, but sometimes these parallel interspaceal shades are perceptible against the dark olivaceous subterminal eoloration. A very fine interspaeeally lunulate subeontinuous black terminal line, continued on hind wings. Secondaries more smoky, concolorous, with median and subterminal lines continuous with t. p. and s. t. lines of primaries. Beneath the hind wings are basally pale, with distinct discal dot and approximate irregular dark median lines. Both wings have blackish wide borders cut by the pale subterminal shade. Primaries almost wholly dark with transverse lines only visible on costa. Body parts concolorous; legs dark outwardly; tarsi dotted. *Expanse* 23—25 m. m.

Habitat.—New York (Hastings, June 18th); Pennsylvania.

TETANOLITA, *Grote.*

A generic term proposed for a small blackish lustrous species resembling in appearance the smaller speeies of Renia (*centralis* and *restrictalis*), but differing in antennal and palpal structure. The disproportionately heavy labial palpi are like those in Helia and Epizeuxis, divaricate, arcuate, loosely held and closely scaled. Maxillae moderate. In the male the longer slender ciliate or finley bristled antennae are provided with a slight exterior tuft of scales at rather within basal third; in the female the shorter antennus is simple. The legs are finely scaled; in the male the fore tibiae are thickly scaled, strongly spurred on hind tibiae (in my only ♀ specimen the legs are defective). In shape the wings are as in Renia (*centralis*) and unlike Epizeuxis in the more produced apices. The ornamentation is like

Renia (*centralis* or *restrictalis*), but the palpal and antennal structure at once separates the present form.

With but two specimens before me, in good condition, I do not wish to destroy my types for the sake of describing the neuration, which probably does not differ greatly from that of Renia.

Tetanolita lixalis. *Grote.*—♂ ♀.—Silky blackish. Primaries with a faint purplish reflection. T. a. line indistinct, linear, darker than the ground color of the wing, medially with a rounded outward inclination. Reniform clear pale yellowish in both my specimens without included dots, indistinctly darker ringed, contrasting. T. p. line linear, dark, finely dentate, indicated on costa by pale scales, a little projected opposite the cell. Subterminal line distinctly indicated by small whitish lunulated included dots, a little outwardly projected over median nervules. A very fine terminal line; fringes concolorous, neatly interrupted with pale scales, The neat ornamentation may be clearly seen against the almost uniform blackish ground of the primaries with attention. Hind wings much paler, smoky-whitish, with two darker median lines, approximating towards internal margin, and faint discal mark; terminal line and fringes as on primaries. Beneath blackish, paling towards internal margins, with distinct discal marks and double neatly and minutely dentated transverse lines. Head and appendages, thorax and legs outwardly blackish, concolorous; abdomen paler. Tarsi dotted with pale scales. *Expanse* 20 m. m.

Habitat.—Alabama; Texas.

MEGACHYTA, *Grote.*

The single species differs by the antennal structure, in which, as in other characters, it resembles Chytolita.

Megachyta lituralis. (*Hübner*).—♂ ♀.—Pale brown, the transverse lines marked on costa and very wide apart. Basal half line indicated; two black liturate spots on costa at inception of t. a. and t. p. lines and a third at apices, the largest, without the inception of the pale subterminal. T. a. line black, very narrow and faint, even or nearly so, often obliterate. Reniform a narrow lunate black mark sometimes resolved into superposed dots. T. p. line black, guttiform, of the usual shape, resolved into nervular black dots connected very finely and faintly by a paler line. Subterminal line whitish, formed by whitish lunulations with blackish interior shade points, even on costa before the black apical shade. A fine disconnected terminal black line more continuous on the hind wings. Secondaries concolorous with two transverse slightly irregular divaricate parallel darker shaded lines with paler outer edging. Fringes concolorous. Beneath both wings with distinct common narrowly lunulated transverse marks and fine interrupted terminal line as on upper surface. *Expanse* 22 to 28 m. m.

Habitat.—Pennsylvania to Texas.

EPIZEUXIS, *Hübner.*

This generic term has priority over *Helia*, Guenée, and should be retained for our species of which I recognize, with certainty, two in the collection before me from the Atlantic District.

Mr. Walker's *Microphysa? scriptipennis* is a re-description of *Helia americalis*, Guenée. The *Microphysa? mollifera* of the British Museum Lists is also founded on a species of Epizeuxis, but my notes do not indicate the particular species; I think that E. aemulalis is thus re-described. To Mr. Walker is due the credit of having recognized Hübner's priority for the generic designation.

Epizeuxis aemulalis, *Hübner.*—♂ ♀.—Very variable in size and depth of color. Of a rather dark bluish testaceous grey. Transverse line narrow rivulous, black, continued. Reniform yellowish, with a faint interior blackish line, approximate to the diffuse black median shade. Orbicular minute, approximate to the t. a. line, pale. T. p. line succeeded on costa by a pale shade very irregularly and finely dentate. Subterminal line faint, atomical, pale with darker inner edging. A fine very black interrupted terminal line. Secondaries a little paler with three approximate transverse rivulous darker lines, the median usually most distinct, the outer sometimes very distinct, generally fainter than the others. Beneath with double, finely dentate transverse common lines, and two divaricate black discal marks on either wing. *Expanse* 25 to 30 m. m.

Habitat.—New York to Virginia.

Epizeuxis aemulalis is a very variable species in size and color, so that I do not feel authorized to describe as distinct a pale specimen in the collection which differs from all the rest in that the discal spots of the fore wings above are diffusely black.

Epizeuxis americalis, *Walker.*

Helia americalis, Guenée.

♂ ♀.—This brightest and most distinctly marked species of the genus resembles the European E. calvarialis, and seems to represent it in our fauna. It is paler, shorter winged and more distinctly lined, especially on hind wings The transverse lines on the primaries differ in detail in the two species. In ours they are more rivulous or dentate, as in E. aemulalis. The median shade in americalis is less diffuse and differently situated, since it runs approximate to the reniform and joins the costa just within the inception of the t. p. line, whereas in calvarialis it crosses the median space centrally. Our species varies in size, but very slightly in ornamentation or color. *Expanse* 20 to 26 m. m.

Habitat.—Massachusetts to Georgia. The larva has been reported to me to occur commonly on Indian corn; Abbot figures it on an unpublished plate on phlox.

HELIA, Guenée.

The shortly and evenly pectinated ♂ antennæ, bristled in ♀, and the heavier and longer arcuate labial palpi, separate our single common species from the two referable to Epizeuxis. In a restricted sense I retain this generic term for Helia phacalis, *Guenée*.

Helia phacalis, *Guenée*.—♂ ♀.—Primaries silky blackish brown crossed by three undefined dentate pale yellowish lines. A pale lunate discal mark outwardly defined. Secondaries pale fuscous, with two diffuse darker shade bands. Beneath pale fuscous, with two common exterior shaded bands and dark discal marks. Legs outwardly brownish with pale dots. *Expanse* 26 to 34 m. m.

Habitat.—Eastern and Middle States. Of frequent occurrence and casually resembling Aglossa.

I have so far in these papers noticed many deltoidous genera of North American Noctuidae; I give here a list of species found in our Territory, omitting the unrecognized descriptions written by Mr. Walker.

The species hitherto referred to Herminia are susceptible of generic division. For Herminia morbidalis *Guenée*, the term Chytolita is proposed. The species differs from Pechipogon *Hübner*, the type of which is the European P. barbalis, in its neurational characters as mentioned by Guenée, p. 56. For other species the term Zanclognatha, *Lederer*, is retained. It seems to me that this is founded on European types strictly congeneric with our American Herminia cruralis *Guenée*, and I use it in this sense here. Herminia *Latreille*, seems to be now used for the European H. tentacularis; since I regard H. longilabris as generically distinct I retain the latter as the type of Philometra. Cleptomita seems to fall in between Zanclognatha and Philometra; while, owing to defective material, I am yet prevented from announcing new allied North American forms.

I close the series of genera with Tortricodes, from the consideration that the cleft primary is a degradational character. In other respects the genus is allied to Epizeuxis. But it is as yet too early for me to offer argument upon the natural sequence of the genera.

Mr. J. A. Lintner, whose conscientious Entomological Reports merit approval, writes me that he has both sexes of Tortricodes bifidalis with cleft primaries. I then refer *T. indivisalis* to Heterogramma, Guenée, believing our species not to differ generically from the Brazilian species which M. Guenée uses for his type.

CHYTOLITA, *Grote.*
morbidalis.
Herminia morbid. Guenée.

PITYOLITA, *Grote.*
pedipilalis.
Herminia pedip. Guenée.

LITOGNATHA, *Grote* (i. l.).
rubilifascia, *Grote* (i. l.).
litophora, *Grote* (i. l.).

ZANCLOGNATHA, *Lederer.*
laevigata.
Herminia laevig. Grote.
ochreipennis.
Herminia och. Grote.
cruralis.
Herminia crur. Guenée.
marcidilinea.
Herminia marcid. Grote.
obscuripennis.
Herminia obscur. Grote.

CLEPTOMITA, *Grote.*
atrilineella, *Grote.*

PHILOMETRA, *Grote.*
longilabris, *Grote.*
serraticornis, *Grote.*

MEGACHYTA, *Grote.*
lituralis, *Grote.*
Epizeuxis lituralis, Hübner.

PHALAENOSTOLA, *Grote.*
larentioides, *Grote.*
citima, *Grote.*

RIVULA, *Duponchel.*
propinqualis, *Guenée.*

BLEPTINA, *Guenée.*
caradrinalis, *Guenée.*
inferior, *Grote.*

RENIA, *Guenée.*
discoloralis, *Guenée.*
Hypena fallacialis, Walk.
brevirostralis, *Grote.*
alutalis, *Grote.*
plenilinealis, *Grote.*
larvalis, *Grote.*
centralis, *Grote.*
restrictalis, *Grote.*
?
belfragei, *Grote.*

TETANOLITA, *Grote.*
lixalis, *Grote.*

HELIA, *Guenée.*
phaealis, *Guenée.*

EPIZEUXIS, *Hübner.*
aemulalis, *Hübner.*
americalis, *Walker,*
Helia americ. Guenée.
Microphysa? scriptipennis, Walk.

PANGRAPTA, *Hübner.*
decoralis, *Hübner.*
Hypena elegantalis, Fitch.
Marmorinia geometroides, Guenée.
Marmorinia epionoides, Guenée.

PHALAENOPHANA, *Grote.*
rurigena, *Grote.*

PALTHIS, *Hübner.*
angulalis, *Hübner.*
asopialis.
Clanyma asopialis, Guenée.

COLOBOCHYLA, *Hübner.*
interpuncta.
Madopa interp. Grote.

HYPENA, *Schrank.*
citata, *Grote.*
humuli, *Harris.*
evanidalis, *Robinson.*

BOMOLOCHA, *Hübner.*
manalis.
Hypena manalis, Walker.
baltimoralis.
Hypena baltimoralis, Guenée.
abalienalis.
Hypena abalienalis, Walker.
bijugalis.
Hypena bijugalis, Walker.
madefactalis.
Hypena madefactalis, Guenée.

PLATHYPENA, *Grote.*

scabra.

♂ *Hyblaea scabra*, Fabr.

♀ *Hypena erectalis*, Guenée.*

var. ♀ Hyp. subrufalis, *Grote.*

LOMANALTES, *Grote.* (i. l.).

laeĉulus, *Grote* (i. l.).

MACRHYPENA, *Grote.*

deceptalis.

Hypena deceptalis, Walker.

profecta.

Hypena profecta, Grote.

EUHYPENA, *Grote.*

toreuta.

Hypena toreuta, Grote.

sordidula.

Hypen sordidula, Grote.

HETEROGRAMMA, *Guenée.*

indivisalis.

Tortricodes indivisalis, Grote.

TORTRICODES, *Guenée.*

bifidalis, *Grote.*

* Mr. Lintner has since informed me that by breeding he has discovered the fact that *erectalis* is the ♀ form of *scabra*. I have then been in error in my sexual determinations in these two species.

———o———

EXPLANATION OF PLATE I.

Fig. 87. *Hypena evanidalis.*

" 88. *Xanthoptera rosalba.*

" 89. *Xanthoptera coecineifascia.*

" 90. *Sparĝaloma sexpunctata.*

" 91. *Renia brevirostralis*, ♀.

" 92. *Renia brevirostralis*, ♂.

" 93. *Bomolocha bijugalis.*

Fig. 94. *Renia restrictalis*, ♀. (This figure is not dark enough and gives an erroneous idea of the species.)

" 95. *Renia Belfragei*, ♂.

" 96. *Charadra propinquilinea.*

Revision of the BRUCHIDÆ of the United States.

BY GEO. H. HORN, M. D.

The family Bruchidæ contains few genera, but very many species distributed in great part in the tropical and warmer temperate regions of the globe. They all undergo their metamorphoses in the seeds of various plants, principally Leguminosæ, and frequently by their numbers cause great injury and loss in those seeds which form part of the food of man. In this list we find peas, beans, lentils, etc. Each species appears to prefer a special plant, or at most, restricts its attacks to the species of one genus.

In our fauna we have three genera;

Anterior coxæ entirely separated by prosternum.
Hind tibiæ with two slender articulated spurs..... .....**Spermophagus.**
Hind tibiæ without articulated spurs.....**Caryoborus.**
Anterior coxæ very prominent contiguous at apex.
Hind tibiæ without articulated spurs..... .....**Bruchus.**

The rather broad intercoxal process of prosternum and the shorter and more oval coxal joints appear to me of sufficient moment to warrant the separations of the species alluded to *Caryoborus arthriticus* as distinct from the other species of *Bruchus*. The elytra are also longer and almost entirely hide the pygidium, which is nearly horizontal, and the antennæ very long and the eyes coarsely granulated, although these two last characters are by no means absent among the true *Bruchus*.

The position the Bruchidæ should occupy in relation to the other tetramerous families appears not to be definitely settled, most authors placing them near the Rhynchophora, while others, among the Curculionidæ themselves. Lacordaire admits that their organization allies them closely to the Chrysomelidæ. This latter place is certainly their position, and if really entitled to rank as a distinct family from the Chrysomelidæ (which is even very doubtful) they should immediately succeed them in a natural arrangement. They are certainly not Rhynchophora.

SPERMOPHAGUS, Schon.

Spermophagus, Schon., Curculionides, i., p. 102.

Prosternum entirely separating the coxæ. Hind coxæ very broad. metasternal parapleuræ broad parallel. Hind tibiæ with two unequal articulated spurs, the inner one shorter and placed at right angles to

the tibiæ. Hind tibiæ compressed cylindrical, hind femora not toothed. Form oblong oval, feebly convex, elytra nearly covering the pygidium. Eyes coarsely granulated.

S. robiniæ, Fab. Syst. El. ii., p. 397; Ent. Syst. i., 2, p. 370; Mantis. i., p. 41; Spec. Ins. i. p. 75. Oval, ferruginous, elytra with small black spots and irregularly clothed with cinereous and ochreous pubescence. Antennæ yellowish testaceous, subserrate. Head ferruginous, punctured. Thorax nearly semicircular in form, anteriorly truncate, base at middle truncate and on each side bisinuate, a fine median line distinct only in basal half; color ferruginous irregularly clouded with piceous, surface with coarse punctures sparsely placed, and finer punctures and densely placed in the intervals; clothed with cinereous and ochreous hairs. Elytra elongate oval, broadest at middle, apices broadly rounded. Surface striate, striæ punctured, intervals feebly convex and densely punctulate; color ferruginous, marked with black spots arranged in five irregular transverse series; clothed with cinereous and ochreous hairs. Body beneath darker than the upper surface and similarly clothed, with sparsely placed coarse punctures, and fine punctures densely placed in the intervals. Legs dark ferruginous. Length .30 inch; 7.5 mm.

Occurs in the Middle, Southern and Western States. This insect in general aspect resembles some of our Cistelidæ, notably *Chromatia*.

Other species of the genus have at times been introduced, but their existence is short, and none appear to have become acclimated, probably from lack of food peculiar to them.

CARYOBORUS, Schon.

Caryoborus, Schon., Curcul. i., p. 92.

Prosternum entirely separating the coxæ. Hind coxæ moderately broad. Hind tibiæ obliquely prolonged and not spinulose, finely grooved on inner edge. Hind femora broad with a tooth and numerous denticulations at tip and with the lower margin crenulate. Head behind the eyes constricted. Lateral margin of thorax straight subacute not deflexed in front, basal margin with a distinctly impressed line close to and parallel with the entire margin. Elytra nearly concealing the pygidium.

The above characters seem worthy of fixing the generic value of *Caryoborus.* The species certainly have a very different aspect from the genuine *Bruchus.*

Two species are known in our fauna.

Humeri muricately punctured; elytra ferruginous pubescence even .. **Veseyi.**
Humeri smooth; elytra brownish, pubescence denser in spots... **arthriticus.**

C. arthriticus. Fab. Syst. El. ii., p. 398; *gleditsiæ,* Linn. Syst. Nat. i., ii., p 605; Oliv. Ent. iv., 79. p. 9, pl. 7, fig. 7. Elliptical, piceous, clothed with cinereous pubescence more densely placed in small spaces. Head piceous, punctured,

sparsely pubescent, front obsoletely carinate. Eyes large coarsely granulated. Antennæ longer than one-half the body, piceous, externally serrate. Thorax transverse, narrower in front, truncate, sides margined, arcuate, hind angles nearly rectangular, base sinuate, median lobe moderate and emarginate opposite the scutellum; surface feebly convex and with very coarse punctures unequally disposed, more dense at the sides in front and at middle, and with minute punctures densely placed in the intervals and clothed with cinereous pubescence. Scutellum sub-reniform, pubescent. Elytra oblong oval, humeri moderately prominent densely and finely punctured, surface striate, striæ shallow but with large punctures, intervals feebly convex, densely and finely punctulate, clothed rather sparsely with cinereous pubescence more densely placed in spots. Body beneath darker than above, more finely punctulate and less densely clothed. Legs ferruginous or piceous, hind femora broad, pectinato-dentate near apex, the first tooth being larger, and finely crenulate along the lower margin; hind tibiæ strongly arcuate, obliquely truncate at apex and prolonged on the inner edge. Length .32 inch; 8 mm.

Occurs in States along the Gulf Coast.

C. Veseyi, n. sp.—Elliptical, ferruginous or pale brown, evenly clothed with cinereous pubescence.

This species resembles closely the preceding, but differs as follows:

Antennæ slender not subserrate, longer than half the body, pale ferruginous. Thorax less transverse and less coarsely punctured, median basal lobe not emarginate at middle. Scutellum truncate at base, subquadrate. Elytra more elongate more deeply striate, striæ coarsely punctured, humeral prominence densely asperato-punctate, elytral intervals feebly convex internally, flat externally, densely but very feebly punctulate; surface evenly clothed with cinereous pubescence not densely placed. Body beneath darker than above and similarly clothed. Legs ferruginous, the anterior two pair somewhat paler. Hind femora similarly armed as in *arthriticus*, but with the anterior tooth larger and the crenulations of the lower edge more distinct. Length .36—.50 inch; 9—12.5 mm.

This is the largest species in our fauna, and by description resembles *nucleorum* and *bactris*, but without the impressed antennæ of those species. Easily known from *arthriticus* by the characters given above, especially by its slender antennæ, rounded median basal lobe and the roughly punctured humeral prominence.

Specimens were collected in the Peninsula of Lower California, by John Xantus de Vesey, to whom it it dedicated.

BRUCHUS. Linn.

Bruchus, Linn. Syst. Nat. El. 12, ii., p. 604.

This genus contains in our fauna numerous species, presenting many differences in external appearance and many variations in the structure of one or other portion of their organization. Notwithstanding the changes which many parts of the structures present, none appear

to be of sufficient moment or permanence to afford a basis for the subdivision of the genus into genera of equal value among themselves. These variations, however, afford good bases for the formation of groups, and enable the species to be determined with great ease considering their small size and similarity of vestiture.

The following sketch of the groups into which I propose to distribute our species may appear almost too mathematical to be correct in nature; they will be found, however, to be very persistent in each species, and I have scarcely found in all the specimens examined any variation in the number and position of the denticles of the hind femur:

Thorax with tooth at middle of side.
  Hind femur with tooth on outer side only.....Gr. I.
Thorax not toothed on the sides.
  Disc of thorax elevated, with a median groove.
    (Hind femur with a strong tooth and three denticles).....Gr. II.
  Disc of thorax simply convex, not elevated.
    Hind femur with a tooth on both inner and outer margins.....Gr. III.
    Hind femur mutic (antennæ pectinate or flabellate ♂).....Gr. IV.
    Hind femur with one tooth only on inner margin.....Gr. V.
    Hind femur with one tooth and one denticle.....Gr. VI.
    Hind femur with one tooth and two denticles.....Gr. VII.
    Hind femur with one tooth and three denticles.....Gr. VIII.
    Hind femur with a few small denticles only.....Gr. IX.

The tooth of the hind femur is situated at the distal end at about one-fourth from the knee, on the lower edge and (except as noted above) on the inner side. Between the tooth and the knee is an emargination of greater or less depth in which the denticles are situated. In Group IV. there is not ooth nor denticle and no emargination of the lower edge of the femur. The femur does not present in any of our species that broad oval form which appears to be accompanied by an extraordinary leaping power. The nearest approach to it is seen in *B. mimus*, Say, which resembles in its general aspect a diminutive *Pachymerus*.

Group I.

Thorax broader than sides moderately arcuate and with a tooth at middle. Antennæ scarcely larger than half the body, similar in the two sexes, gradually thicker externally and subserrate. Posterior femur with a strong tooth near the apex on the outer side. Middle tibiæ ♂ more or less arcuate and with a small tooth on the inner margin near the tip.

This group consists of two species, both introduced from Europe.

Thorax behind lateral tooth sinuate. ..... **rufimanus.**
Thorax behind lateral tooth not sinuate ..... **pisi.**

B. rufimanus. Sch. Curcul. i., p. 58.—Oblong oval, black, sub-opaque. Head black, densely punctulate, sparsely clothed with ochreous pubescence. Antennæ black, four basal joints rufous. Thorax broader than long, sides moderately rounded in front of tooth, sinuate behind it, tooth in front of middle, acute and moderately prominent; surface opaque densely punctured and with a whitish triangular space in front of scutellum. Scutellum sub-quadrate, emarginate at apex sparsely clothed with cinereous hairs. Elytra slightly longer than broad, feebly convex, sides moderately rounded, surface more shining than the thorax, moderately striate, intervals flat, densely punctulate, and with the basal margin, base of suture and two irregular transverse bands of whitish hairs. Pygidium clothed with cinereous hairs and with two oblong black spots. Body beneath black, densely punctulate and clothed with cinereous hairs. Anterior legs rufous, except their tarsi, tip of tibia and base of femur which are piceous. Middle and hind legs black. Hind femur with a not very distinct tooth near the apex on the outer side. Hind tibia sub-truncate, inner spine not prolonged. Length .14—.16 inch; 3.5—4 mm.

This species was sent me by Mr. C. V. Riley, of St. Louis, as having been reared from pea-pods imported from Switzerland. The European synonymy has been omitted as not pertinent to the present essay. It is closely allied to the following species, but a comparison of the two descriptions will suffice to distinguish them.

B. pisi, Linn. Syst, Nat. i., ii., p. 604; Schon. Curcul. i., p. 57.—This species is larger than the preceding and more depressed. The thorax is broader, and broader at base, and the tooth more acute and longer. The three basal joints of the antennæ are rufous. Legs black, anterior tibiæ and tarsi rufous. Hind femur with an acute tooth on the outer margin. The surface of the body is similarly sculptured, but the vestiture is different. The thorax is clothed with ochreous hairs with a whitish space opposite the scutellum. Elytra clothed with yellowish, cinereous and whitish hairs, the latter forming an oblique band behind the middle. Body beneath black, slightly shining and densely punctulate, sparsely clothed with cinereous hairs. Pygidium cinereo-pubescent with two oval blackish spots. Length .20 inch; 5 mm.

Abundant over nearly the entire globe, wherever peas are cultivated, and is at times very destructive to that crop.

Group II.

In this group I have separated one species which does not in its aspect appear to belong to any of these which follow, although from the armature of the hind femur it might be included in Group VIII. The hind femur is broader than is usual in our species and armed with a tooth and three denticles; the the tooth is moderate, and the

first two denticles acute and nearly equal in size, the third denticle is broader, shorter and sometimes bifid or emarginate so as to appear as if four denticles were present; the lower edge of the femur is finely crenulate and the apex of the tibia obliquely truncate and the inner angle prolonged. The thorax is campanulate in form, the hind angles decidedly laminiform and the disc rather deeply channelled along the middle, the groove being bounded by an obtusely elevated ridge interrupted at its middle. The body is of robust form, sub-quadrate in outline, elytra feebly convex or sub-depressed. Antennæ similar in the sexes, gradually thicker at tip and slightly more robust in the male.

B. mimus. Say, Curc. N. A, p. 2; Am. Ent. Edit. Lec. i., p. 260; *cratægi*, Sch. Curc. v., p. 119; *murinus*, Sch. (err. pro *mimus*, Say) Curc. v., p. 132; *borealis*, Sch. Curc. v., p. 132.—Brownish, varigated with cinereous, blackish and white pubescence. Head elongate oval, densely punctured, slightly constricted behind the eyes, front carinate, sparsely clothed with cinereous and ochreous hairs. Antennæ pale rufous, basal four joints cylindrical, outer joints flattened and rather suddenly broader. Thorax campanulate, hind angles laminate, disc interruptedly bicostate and on each side near the base a small tubercle; surface sparsely clothed with ochreous pubescence, costæ at summit black or dark brown divided by a small whitish spot. Scutellum quadrate, a median line distinctly impressed, apex emarginate, clothed with brownish hairs. Elytra nearly as broad as long, disc sub-depressed, sides moderately rounded, surface striate, striæ punctured, intervals flat, densely punctulate; color dark brown to rufous, clothed with cinereous, whitish, ochreous and black hairs, the latter arranged as follows: a cordiform spot common to both elytra behind the scutellum and small lines on the intervals irregularly disposed, tipped with white at basal end. Pygidium nearly vertical, moderately convex, clothed with whitish hairs ♀ or with a large, smooth, oval, brown space ♂. Body beneath dark brown, densely punctulate, sparsely clothed with cinereous hairs. Legs pale rufous, hind femur usually darker, and on the under side piceous, hind tibiæ with piceous band at middle, apex spiniform. Length .12 inch; 3 mm.

Abundant from the Middle States southward and westward to Texas and Kansas. The markings of the elytra formed by the distribution of the pubescence of various colors are extremely variable, the cordiform spot near the middle behind the scutellum is very constant and characteristic of the species. There need be no difficulty in distinguishing it from any other species, by the bicostate thorax and strong femora. It has been widely distributed in cabinets under the name *cratægi*, Sch., the name *mimus*, Say, having apparently been lost sight of. Through an error in the reading of Say's name, Schonherr proposed *borealis* for what he supposed to be *murinus*, which was pre-

occupied. The name *cratægi*, Sch., is a true synonym, the type was a male, Say's type was the other sex.

Group III.

The species of this group are for the most part of short robust form. The front is usually carinate, the antennæ serrate or even pectinate in the males. The hind femora are not very stout, but have both on the outer and inner margins a tooth, that of the inner side larger. Vestiture and color variable.

Elytra varicolored, pubescence varied.
Median basal thoracic lobe with elevated ivory-like space.....**scutellaris.**
Median basal lobe with whitish hairs only.....**quadrimaculatus.**
Elytra unicolored, black, pubescence dark cinereous.....**sordidus.**

B. scutellaris, Fab. Syst. El. ii., p. 399; Ent. Syst. ii., p. 372.—Short, robust, brownish, opaque. Head brown, opaque, densely and coarsely punctured, front subcarinate. Antennæ variable, usually pale rufous, rarely with the outer joints nearly black, as long as head and thorax, male pectinate, female serrate. Thorax trapezoidal, sides nearly straight, base trisinuate, median lobe emarginate at middle; color brownish opaque; surface coarsely punctured intervals rugoso-granulate; median line in front and narrow space at sides sparsely clothed with cinereous pubescence, a small whitish spot on each side of the median line near the middle of the thorax, basal lobe white, ivory-like, clothed with whitish pubescence. Scutellum convex, white. Elytra sub-quadrate, feebly convex, wider at base than thorax; surface striate, striæ punctured, intervals flat, scabrous or finely punctulate; color usually brownish or ferruginous with darker spaces at base and humerus, and a darker space at middle of side connected along the margin. Pygidium nearly vertical, clothed with ochreous hairs, with a whitish line along the middle and a reniform brown spot on each side near the apex. Body beneath brownish, densely punctulate, sparsely clothed with whitish hairs; abdomen paler, with a band of white hairs at the sides. Legs, anterior and middle pairs, pale rufous, hind legs dark rufous or brownish. Hind femora armed near the tip with an acute tooth on the outer and inner side. Length .12—.16 in; 3—4 mm.

This species is variable in its color and elytral vestiture. The above description applies to the forms most abundantly found. Specimens from the Southern States are much darker in color and exhibit the elytral vestiture more distinctly. Between the basal and lateral dark spaces the pubescence is pale ochreous, and behind the lateral space cinereous. In front of the lateral spaces is a short band composed of three spots and behind it an irregular band crossing the elytra. The third interval has also a short white line. The pubescence of the pygidium at times becomes uniformly cinereous.

This species has been confounded with *quadrimaculatus*, but differs

by its shorter and more robust form and system of coloration. The differences will be made known under that species.

This species appears to have been widely distributed over the entire globe and has several times been described under other names. The foreign synonymy has been omitted as not pertinent to the present essay.

B. quadrimaculatus, Fab. Syst. El. ii., p. 398; Ent. Syst. i., ii., p. 371; Oliv. Ent. iv., p. 49, pl. 3, fig. 24.—Elongate oval, moderately shining. Beneath equally clothed with whitish pubescence. Elytra ferruginous or pale brown with large lateral spot and apex broadly black. Head dark brown or black, densely punctured, front sub-carinate. Antennæ as long as head and thorax, serrate in both sexes, four basal joints pale rufous, outer joints dark and nearly black. Thorax trapezoidal, broader at base than long, sides distinctly arcuate, base trisinuate, basal lobe emarginate and clothed with whitish hairs; color variable from ferruginous to black, coarsely punctured, sub-granulate and feebly shining, sparsely clothed with cinereous hair. Scutellum with median impressed line and clothed with whitish hair. Elytra broader at base than thorax and longer than wide, sides feebly arcuate, humeri moderately prominent; striate, striæ punctured, intervals flat densely punctulate; color ferruginous with large lateral spot and apex black, clothed with whitish and cinereous pubescence. Pygidium nearly black with median line of whitish pubescence. Body beneath piceous densely punctulate and sparsely but evenly clothed with cinereous hairs; abdomen pale brown. Anterior and middle legs pale rufous, hind legs pale brown. Hind femora armed with an acute tooth on the inner side and a broad triangular tooth on the outer side. Length .12—.18 inch; 3—4.5 mm.

The great majority of specimens are nearly black with the elytra pale brown with the four spots as indicated. An occasional specimen is seen of rufous color as figured by Olivier, which has the elytra in great part deprived of pubescence. The pubescence is cinereous but with the third interval with a short white line, at each end of which is a brownish spot; between the external and apical spots an irregular whitish band. The lateral spot has at times a patch of pubescence at its centre so that the color of the spot is concealed and it then appears as a sinuous band.

B. quadrimaculatus is closely allied to *scutellaris,* but differs in many points. The thorax is broader, the sides distinctly arcuate, the basal lobe not eburneous. The scutellum is flat and with median line. The elytra are longer, and differently spotted and the abdomen is evenly clothed with cinereous pubescence. This species is also larger and much less robust.

Occurs in the West India Islands and the Southern States.

B. sordidus, n. sp.—Short, robust, black, opaque, sparsely clothed with dark cinereous or ochreous pubescence. Scutellum white. Pygidium and undersurface clothed evenly with whitish pubescence. Head black, scarcely pubescent, densely punctured, front not carinate. Antennæ pale rufous, outer joints slightly darker, feebly sub-serrate. Thorax one and a half times broader at base than long, sides strongly arcuate, base trisinuate, median lobe moderate, feebly emarginate, surface moderately convex, densely and evenly punctulate, punctures much coarser near the base, clothed with ochreous and cinereous hairs, evenly intermixed. Scutellum sub-quadrate, emarginate at tip and not impressed along the middle, clothed with whitish pubescence. Elytra rather suddenly broader than the thorax, as wide as long, sides arcuate, surface moderately convex, humeral protuberance feeble, striate, striæ punctured, intervals flat, densely punctulate, clothed with dark ochreous and cinereous pubescence evenly intermixed. Pygidium nearly vertical, broader than long, moderately convexed near apex, clothed with whitish pubescence. Body beneath black, densely punctulate, sides of metasternum coarsely punctured, evenly clothed with cinereous pubescence. Legs pale rufous, hind femora piceous at base and armed near the tip with a slender, long, sub-arcuate tooth on the inner side and a short, broad tooth acute at tip on the outer side. Length .10—.12 inch; 2.5—3 mm.

The strongly rounded sides of the thorax give this species a very different appearance from the other two of this group. Its uniformly black color and cinereo-ochreous vestiture will still further help to distinguish it. The outer tooth of the hind femur is much less marked, but at the same time more acute at tip. It bears a greater resemblance to the species of Group V. than to the present group, but the distinct external tooth at once fixes its position.

The specimen before me is a female and from the form of its antennæ would infer that those of the male were at most sub-serrate and not pectinate.

Collected in the Peninsula of Lower California.

Several other species which I have not certainly identified belong to this group.

B. biguttellus, Sch. Curc. i., p. 42; *biguttatus* || Fab. Syst. El. ii., p. 402.—Thorace nigro, lineolis duabus baseos scutelloque albis, elytris basi rufis, antennis flabellatis.

This species appears to be a dark colored male of *scutellaris.* The flabellate antennæ would seem to indicate that it must be referred to this group or the next in which such a character occurs. Schonherr places it among the species with dentate femora, although he did not know the species in nature.

"Patria, Carolina."

B. sinuatus, Sch. Curc. v., p. 8.—"Ovatus, niger, parce griseo-pubescens; elytris striatis, disco rufo-ferruginco, limbo sinuatum nigro, pygidio ferrugineo, fusco maculato, antennarum base pedibusque ferrugineis, femoribus posticis, nigro plagiatis, dente validiore armatis. Scutellum apice subrotundatum, nigrum, tenuiter griseo-pubescens. Elytra-disco rufo-ferruginea, regione scutelli, margine baseos, plaga laterale sinuata, ab humeris pone medium extensa, apice late suturaque auguste nigris, in disco præterea lineis duabus discretis, ejusdem coloris, notata. Pedes quatuor anteriores tenuiores; toti ferruginei, postici validiores, femoribus ferrugineis, nigro plagiatis, subtus apice spina acuta et juxta illam externe dente validiore armatis, tibiis tarsisque totis ferrugineis. Patria Carolina."

This appears to be merely a variety of 4-*maculatus*, of the darker colored variety in which the lateral black space has a central spot of cinereous pubeseence so that the spot assumes the form of a sinuous band. The above deseription is an abbreviation whieh agrees fully with the dark variety of 4-*maculatus* already eited.

B. maculatus, Fab. Syst. El. ii., p. 491; Ent. Syst. i., ii., p. 373; Oliv. Enc. Meth. v., p. 201; Linn. Syst. Nat. Gmel. i., ii,, p. 1737.—"Elytris punctatis, testaceis, nigro-maculatis, podice griseis, punctis binis nigris. Patria America."

This species is said to be synonymous with *quadrimaculatus* by Sehonherr, Curc. v., p. 2, but the deseription is so very short and uncharacteristie as to be absolutely valueless, although Schonherr, who appears to have seen the species, appears to be eertain of the synonymy.

B. ambiguus, Sch. Curc. v., p. 11.—"Oblongo ovatus, sub-depressus, niger, inaequaliter cinereo tomentosus, antennarum basi pedibusque rufo-testaceis; thorace confertim punctato, nigro, nitido, in medio baseos lineolis duabus angulatis, albo-tomentosis notato; elytris punctato-striatis ferrugineis, lateribus sinuatim apiceque nigris. Patria Louisiana, Americes."

Similar to *B. quadrimaculatus*, but more than twice the size, thorax more evidently punctured and more shining, etc. Head moderately large, convex, densely punctulate, black, sparsely elothed with whitish hairs, front finely carinate. Eyes lunate, black, moderately prominent; rostrum very short. Antennæ moderate, serrate, black, the basal three or four joints rufo-testaeeous. Thorax slightly shorter than broad, apex half as wide as base, truncate; sides oblique nearly straight, base trisinuate, median lobe not deeply but acutely ineised; above moderately eonvex, sub-pulvinate, blaek, moderately shining, at sides eineree-tomentose; at middle of base two whitish lines not elevated, eontiguous at their apices are seen, either straight or slightly angulate toward the sides. Scutellum ovate, blaek. Each elytral base rounded, searcely wider than base of thorax, humeri rounded, elevated in moderately long callus; sides not rounde l at apex, each

obtusely rounded, twice as long as thorax, above almost flat, distinctly striate, striæ sub-remotely punctured; intervals flat, very finely transversely strigose; color ferruginous slightly shining, with numerous short whitish lines in the intervals and at the sides sinuately and at apex transversely black. Pygidium semi-orbiculate, either entirely cinereo-tomentose or with a median line of same color. Body beneath obsoletely punctulate, black, finely cinereo-tomentose. Middle and anterior legs more slender, rufo-testaceous; posterior legs robust, femora thick, often black, cinereo-tomentose, beneath near apex armed with a moderate tooth, tibiæ and tarsi testaceous.

Varies with the elytra entirely black.

The above description, which is a translation of that of Schonherr, indicates a species totally differing from any known to me. It cannot be definitely stated that it is a member of the present group, although associated, by Schonherr, with other species with the armature of hind femur peculiar here; in fact in but one instance has Schonherr stated the existance of an external as well as internal tooth. The matter is left for the discoveries of future collectors who will be rewarded with one of the largest species in our fauna.

Group IV.

This group contains those species in which the femur becomes quite slender and has neither tooth nor denticle. All the species in our fauna are short, sub-quadrate, and of robust form. Thorax short, always twice as broad at base as long. In the males the antennæ are pectinate or even flabellate, the eyes large and nearly contiguous on the middle line of the front.

Three species are known.

Elytra black, with large red space on each ..... **discoideus.**
Elytra rufous, with coarse perforations..... **coryphæ.**
Elytra dark rufous, humeri and apex with small black spot, surface variegated with whitish pubescence..... **impiger.**

B. discoideus, Say, Journ. Acad., Ser. 1, vol. iii., p. 307.—Short, robust, black, sub opaque, elytra with large red spot on each near the side. Pygidium nearly vertical, desely clothed with whitish pubescence and with four small black spots. Body beneath black, clothed with whitish pubescence. Head black, sub-opaque, densely punctured, front carinate. Antennæ black, slightly longer than head and thorax, serrate ♀ or flabellate ♂ from the fourth joint, the branches very long. Thorax trapezoidal, nearly twice as wide at base as long, anteriorly truncate, base trisinuate, median lobe prominent, emarginate at tip; sides slightly arcuate; median line finely impressed, on each side of which near the base a broad tubercle, surface coarsely punctured, sub-opaque sparsely clothed with whitish hairs. Scutellum black, cinereo-pubescent, con-

vex and punctured. Elytra scarcely wider at base than thorax, sub-quadrate, sides feebly arcuate and narrowing to apex, sutural region depressed, humeri moderately prominent, surface deeply striate, striæ coarsely punctured, intervals flat, punctato-scabrous, sparsely clothed with very short whitish pubescence; color black, opaque, with large rufous spot touching the lateral margin only. Pygidium elongate oval, densely clothed with white pubescence and with two small round black spots at centre and one triangular on each side near the apex. Body beneath black, densely clothed with whitish pubescence. Legs black, sparsely whitish pubescent. Length .12—.18 inch; 3—4.5 mm.

A very distinct species, and one which cannot be confounded with any other in our fauna. The eyes are unusually large (especially in the male), very convex and nearly contiguous at the front, and behind them the head is apparently constricted. The outer joints of the antennæ are gradually shorter and furnished on the anterior side with long branches from the fourth joint. The process of the fourth joint, although stouter, is scarcely half as long as that of the sixth, the fifth being intermediate in size, the processes from 7—11 are nearly as long as the entire antenna itself. The very short pubescence of the elytra gives them a pruinose appearance. The male has the pygidium nearly vertical, in the other sex slightly oblique.

Occurs in Kansas and Colorado.

B. coryphæ, Oliv. Ent. iv., No. 79, p. 16, pl. 2, fig. 18, a, b, c; Fab. Syst. El. ii., p. 402.—Form short, robust; color rufous, moderately shining, head and antennæ black, beneath clothed with dense white pubescence; legs rufous, hind femora mutic. Head black, sub-opaque, front sub-carinate, eyes large moderately prominent. Antennæ ♂ pectinate from the fifth joint, fourth joint triangular, color black, longer than head and thorax. Thorax rufous moderately shining, one and a half times as wide at base as long, apex truncate, narrowly margined with black, base trisinuate, median lobe emarginate at middle, sides very feebly arcuate; surface densely and coarsely punctured, median line at middle feebly impressed, surface very sparsely clothed with whitish pubescence of a deciduous nature. Elytra sub-quadrate, as broad conjointly as long, gradually wider at base than thorax, deeply and broadly striate, striæ with very large, distinct, deep punctures, intervals narrow, convex and smooth; sutural region depressed. suture very narrowly margined with black: surface very sparsely pubescent with whitish hairs and a small round spot at the middle of suture common to both elytra clothed with whitish hairs. Scutellum small, rounded, clothed with whitish pubescence. Pygidium elongate oval vertical, densely clothed with whitish pubescence, a distinctly impressed puncture on each side of middle and two small black spots at sides near the apex. Body beneath rufous, coarsely punctured and densely clothed with whitish pubescence; hind coxæ black; abdomen rufous, finely punctulate, densely clothed with whitish pubescence. Legs rufous, tarsi black. Length .16 inch; 4 mm.

Closely resembles in form the preceding species, but abundantly

distinct in many points. The elytral punctures are larger and deeper than in any other species in our fauna. The pubescence is of such a nature as to be easily removed from the upper surface. The thorax shows but slight traces of pubescence. The punctures of the thorax, although coarse and dense are yet very distinct and the surface less rugous than in many species with much less dense punctulation. The figure given by Olivier is unusually characteristic. Schonherr appears to have lost sight of Olivier's description and figure and credits Fabricius with the species, although several years later in publication.

One male specimen in the cabinet of Mr. H. Ulke, from Texas.

B. impiger, n. sp.—Robust, oblong-quadrate, black, sparsely cinereo-pubescent, abdomen piceous, legs rufous, hind femora piceous mutic. Elytra dark rufous, humeri and apices darker, sparsely cinereo-pubescent, forming designs. Head black, densely punctulate, front feebly sub-carinate. Antennæ as long as half the body, sub-serrate ♀, outer joints almost black, four basal joints dark rufous or piceous. Thorax piceous, or rufo-piceous, twice as broad at base as long, sides slightly arcuate, base trisinuate, median lobe feebly emarginate; surface moderately convex, densely punctured, opaque, very sparsely cinereo-pubescent, at anterior margin and two spots on each side of middle slightly more dense and evident. Scutellum sub-quadrate, black, sparsely cinereo-tomentose. Elytra slightly longer than wide, at base slightly wider than thorax, sides very feebly arcuate, surface moderately convex, suture not depressed, striate, striæ punctured, intervals flat, densely punctulato-rugose; color dark rufous or pale brown, humeri and outer apical angle piceous or black; sparsely clothed with cinereous pubescence arranged as follows:—A transverse sinuous band composed of short lines on the intervals, beginning on each side behind the humeral dark spot, at apical three-fourths an arcuate band on each elytra composed of short lines on the alternate intervals beginning behind the sinuous band on each side and arching to the apex of suture. Body beneath black, punctulate densely cinereo-pubescent, abdomen piceous similarly invested. Legs rufous, hind femora piceous, mutic. Length .08—.12 inch; 2—3 mm.

Smaller than the preceding two species and without the sutural depression of the elytra.

Collected in Owen's Valley, California.

Group V.

Hind femur armed on the inner margin near the apex with an acute tooth without denticles. The species of this group are less robust than those of the three preceding groups, and are more robust than any which follow. Their form is oblong oval, the sides of the thorax being arcuate and the elytra at base scarcely broader and following nearly the curve of the sides of the thorax. The humeri are scarcely prominent.

Our species are more numerous than in any of the preceding groups and may be distinguished as follows:

Thorax densely clothed with white pubescence; surface color concealed.
Elytra black, an elongate triangular sutural space clothed with white. **Ulkei.**
Thorax sparsely or not clothed with cinereous pubescence; surface color always visible and black.
Elytra black with rufous spots on spaces.
Suture depressed. Rufous spot median touching the lateral margin. **bivulneratus.**
Disc of elytra flat; suture not depressed.
Thorax with median line distinctly impressed at base; elytra more rufous than black.
Hind legs black..... **limbatus.**
Hind legs pale rufous..... **discolor.**
Thorax with median line; elytra more black than rufous.
Elytra with rufous spot near outer apical margin..... **cruentatus.**
Elytra black.
Hind femur and tibia bicolored..... **nigrinus.**
Hind legs entirely black..... **pruininus.**

B. Ulkei, n. sp.—Black, densely clothed with white pubescence, elytra with broad lateral space clothed with black pubescence. Head broadly oval, black, opaque, densely punctulate and clothed with whitish pubescence, epistoma black. Antennæ half the length of the body, pale rufous, serrate. Thorax one-half wider at base than long, sides moderately arcuate and rapidly narrowed in front, apex truncate, angles broadly rounded, base with moderate median lobe rounded at tip, on each side feebly sinuate; surface coarsely punctured and densely clothed with silvery white hairs. Scutellum sub-quadrate, bifid at tip, clothed with white pubescence. Elytra scarcely wider at base than thorax, sides moderately arcuate and gradually narrowed to tips which in each are broadly rounded, surface striate, striæ distantly punctured, intervals flat very densely punctulate and densely clothed at the sides with very black pubescence, and with a triangle of silvery white hairs common to both elytra. Body beneath black, densely clothed with silvery white hairs. Anterior and middle legs rufous, hind legs black. Pygidium broadly oval, densely clothed with white and on each side a round black spot. Terminal abdominal segment with a black spot on each side of middle. Length .20 inch; 5 mm.

One of the most distinct species in our fauna, and at the same time with an unique style of vestiture. The lateral black space begins at the base of the sixth stria and extends obliquely to the tip of the suture, a narrow epiplural space is, however, white; the white space is thus confined to an elongate triangle common to both elytra.

Dedicated with great pleasure to Mr. H. Ulke, who has at all times placed at my disposal any species for study contained in his cabinet.

Collected in Arizona.

B. bivulneratus, n. sp.—Black, feebly shining, elytra black, with large red spot at middle of each, attaining the margin but not the suture. Body short, robust. Head elongate oval, black, feebly shining, densely punctured. Antennæ as long as head and thorax black, three basal joints piceo-rufous. Thorax black, shining, one-half broader at base than long, sides feebly arcuate and gradually narrowing at apex, apex truncate, base at middle lobed, lobe sub-truncate at tip on each side feebly sinuate, surface densely punctured punctures moderately coarse, equal and evenly disposed. Scutellum broader than long, black, clothed with whitish pubescence. Elytra as broad as long, suture depressed, at base not wider than thorax, sides strongly arcuate, surface deeply striate, intervals flat, densely punctulato-rugose. Pygidium broadly oval, sub-opaque, densely punctulato-rugose. Body beneath black, coarsely punctured, abdomen densely punctulate. Legs black, anterior and middle tibiæ occasionally piceo-rufous. Length .12 inch; 3 mm.

The entire surface of this species is very sparsely clothed with a short scarcely evident pubescence, dark brown on the black portions of the body and rufous on the elytral spot. The elytral red spot is large occupying nearly one-half the surface of each elytron, nearer the apex than the base, attaining the lateral margin, but separated from ths suture by one or sometimes two intervals. By its form, coloration and depressed suture it resembles *discoideus* of the preceding group, the hind femur is distinctly unidentate.

Occurs in the Southern and Western States.

B. cruentatus, n. sp.—Broadly oval, black, moderately shining, elytra with red spot of variable size near apex, surface sparsely clothed with cinereous pubescence. Head black, moderately shining, elongate oval, punctured. Antennæ slightly longer than head and thorax, black, four basal joints rufous, sub-serrate. Thorax one-third broader at base than long, moderately convex, apex truncate, base lobed at middle, lobe truncate, on each side feebly sinuate, sides broadly rounded at anterior third, straight and strongly divergent behind; color black, moderately shining, densely and finely punctulate with coarse punctures at base and sides, sparsely cinereo-pubescent, median line at base indicated by very shallow, scarcely evident fovea. Scutellum transversely subquadrate, impressed, emarginate at tip and clothed with cinereous hairs. Elytra broader at base than thorax, humeri moderately prominent, sides broadly rounded, apices rotundato-truncate; surface striate, striæ distantly punctured, intervals flat, densely punctulate, sparsely clothed with very short scarcely evident cinereous pubescence; color black, moderately shining, with red spot of variable size near the apex, sometimes small rounded, unusually large pyriform involving the greater portion of each elytron. Pygidium black, moderately convex, densely punctulate, sparsely pubescent. Beneath black, densely punctulate, sparsely cinereo-pubescent. Anterior and middle legs rufous, hind legs black. Length .12 inch; 3 mm.

This species is of variable appearance from the size of the rufous spot of the elytra, the position of which is, however, subapical usually of moderate size rarely punctiform and occasionaly very large. In the

majority of species before me the legs are as described; one specimen before me has the hind legs also rufous. It resembles the figure of *B. biguttatus*, Ol., and also *B. bipustulatus*, Fab., by description, but distinct from both by many characters. In our own fauna it resembles *B. bivulneratus*, H., but differs by the disc of the elytra flat, the striæ less deep and the position of the spot.

Widely distributed in its range, but not common, in Georgia, Illinois, Texas and Dacota.

B. limbatus, n. sp.—Broadly oval, robust, black, sub-opaque, clothed with cinereous pubescence, elytra black with elongate reniform rufous space, with the emargination external, on each. Head elongate oval, black, sub-opaque, densely punctulate, sparsely cinereo-pubescent, front sub-carinate. Antennæ longer than head and thorax, black, four basal joints rufous. Thorax twice as wide at base as long, apex truncate, base moderately lobed at middle, on each side broadly rounded, sides arcuate and gradually narrowing to apex; surface densely punctured with moderately large punctures evenly disposed, median line at base distinctly impresssd and smooth, clothed with cinereous pubescence, but not densely. Scutellum sub-quadrate, emarginate at tip, clothed with whitish pubescence. Elytra as broad as long, disc sub-depressed, striate, striæ distantly punctured, intervals flat, densely punctulate, humeri moderately prominent, sides arcuate, apices rounded, surface clothed sparsely with cinereous pubescence, color black, with long reniform rufous space attaining the sides near apex and also the apex. Pygidium black, sparsely but coarsely punctured, clothed with whitish hairs. Beneath black, cinereo-pubescent. Antennæ and middle legs rufous, hind legs black. Length .12 inch; 3 mm.

The pubescence gives this species a pruinose aspect. The elytra are more rufous than black, the latter color forming a narrow space along the suture and base, extending down on the sides to near the middle and terminating in a dilated end; the rufous space is, therefore reniform in shape.

Occurs in the Peninsula of Lower California and also in Sonora, Mexico.

B. discolor, n. sp.—Form moderately robust, black, clothed with moderately long, cinereo-pubescence, elytra ferruginous with dark spaces indistinctly limited at sides, base and base of suture. Head black opaque, densely punctulate, sparsely pubescent, occiput with finely impressed median line. Antennæ rufous, slightly longer than head and thorax. Thorax scarcely twice as wide at base as long, sides straight, gradually convergent and rounded at the anterior angles, base with moderate truncate lobe, on each side slightly sinuate, surface moderately convex, coarsely punctured, shining, median line at base impressed and shining, clothed with yellowish cinereous pubescence with a paler line on the median line and toward the sides. Scutellum sub-quadrate, broader than long, emarginate at tip, clothed with white pubescence. Elytra

not broader at base than thorax, humeri not prominent, sides in front slightly divergent, then broadly rounded, surface finely striate, striæ punctured, interstitials flat, densely punctulate, clothed with yellowish cinereous pubescence; color ferruginous, gradually becoming piceous at the sides in front, at base and at base of suture. Pygidium broadly oval, densely punctured, a shallow fovea on each side, surface cinereo-pubescent, median line paler. Beneath black, finely punctulate and cinereo-pubescent. Legs pale rufous. Length .10 inch; 2.5 mm.

The pubescence of this species is rather longer than in any of the group. The elytra gradually pass from the ferruginous color to piceous, the latter color forming a narrow space along the base, down the sides to middle and to the same extent along the suture.

One specimen from Texas in the cabinet of Mr. Ulke.

B. nigrinus. n. sp.—Broadly oval, robust, black, feebly shining, very sparsely clothed with brownish pubescence. Head black, punctured, front obsoletely carinate. Antennæ as long as head and thorax, black, four basal joints rufous. Thorax nearly twice as wide at base as long, base lobed at middle, on each side sinuate, sides rounded in front, straight and divergent to base; surface black, feebly shining, densely punctured, very sparsely clothed with short brownish hair, and a fine cinereous line at middle and a small spot on each side at the basal margin. Scutellum emarginate at tip, clothed with whitish pubescence. Elytra as broad as long, disc sub-depressed, at base not wider than the thorax, sides strongly arcuate, surface striate, striæ distantly punctured, intervals flat, densely punctulato-rugose, color black, moderately shining. Pygidium oval, black, coarsely punctato-rugose, sparsely cinereo-pubescent. Body beneath black, more shining than above, densely punctulate, sparsely pubescent. Femora and tibiæ at basal half black, apex rufous. Tarsi rufous. Length .12—.14 inch; 3—3.5 mm.

Resembles in form *B. cruentatus*, but differs by the absence of elytral red spot, more opaque and rugose surface and more coarsely punctured thorax.

Three specimens from Middle States. Cabinet Leconte.

B. pruininus. n. sp.—Robust; oval, black, moderately shining, sparsely clothed with whitish pubescence, giving the species a pruinose aspect. Head black, densely punctulate, very sparsely pubescent, front sub-carinate. Antennæ as long as head and thorax, black, four basal joints rufous. Thorax nearly twice as wide at base as long, base at middle lobed, on each side sinuate, sides arcuate and gradually narrowed to apex; surface moderately convex, deusely and rather finely punctuate, black, moderately shining, sparsely clothed with whitish pubescence. Scutellum small, rounded, densely clothed with whitish pubescence. Elytra longer than broad, at base slightly broader than thorax, humeri not prominent, sides feebly arcuate; surface very finely striate, striæ punctured, intervals flat, moderately shining, densely but very finely punctulate. Pygidium oblique coarsely and sparsely punctured with fine punctures densely intermixed, clothed sparsely with cinereous pubescence. Body beneath black, densely and finely punctulate, sparsely clothed with

whitish pubescence. Anterior and middle legs rufous, hind legs black, tarsi black. Length .12—.14 inch; 3—3.5 mm.

This species is very distinct from any in the group. The vestiture gives it an unmistakable appearance.

This species is found on the Ironwood tree of Arizona.

Group VI.

This group contains a small number of small species differing from the preceding group in the possession of a small denticle in addition to the main tooth. The tooth is small and the emargination of the femur within which it is situated, is slight, the denticle scarcely evident or even obsolete. The group can hardly be considered of equal value to those which precede, although the species cannot be strictly referred to those which follow. The ninth group is also of doubtful value as the minute denticulation does not appear to be equal among the individuals of the species and any decided enlargement of a denticle would refer the species to some other group. Among our species we always find the primary tooth quite distinct. The denticle that is sometimes present and occasionally obsolete might seem to be too slight a character for the separation of these species from the preceding group. In the group which precedes the tooth is always of moderate size, acute and with the emargination of the femur very decidedly marked. Our species are three, all small, elongate oval, of rather slender form, more attenuate in front and with the pygidium decidedly oblique and never vertical as is seen in most of the species of all the preceding groups. They may be distinguished in the following manner:

Color testaceous; clothed with pale yellowish-white pubescence. **desertorum.**

Color black, more or less concealed by pubescence.

Yellowish pubescence densely placed, concealing surface color...**aureolus.**

Cinereous or whitish pubescence sparsely placed, surface color evident. **pauperculus.**

B. desertorum, Lec., Proc. Acad., 1858, p. 78.—Oblong oval, pale testaceous, clothed with whitish pubescence. Head testaceous, front and occiput dark brown, densely punctulate and clothed with whitish pubescence. Antennæ pale testaceous, scarcely extended to base of thorax, Thorax trapezoidal not wider at base than long, sides nearly straight and gradually narrowed to apex, base feebly lobed at middle, lobe truncate, on each side straight; surface convex, coarsely punctured and rugulose, dotted with whitish pubescence; color variable from pale testaceous to piceo-testaceous. Scutellum twice as long as wide, clothed with white pubescence. Elytra above flat or very feebly convex, not wider at base than thorax, then gradually wider to a point in front

of middle and moderately arcuate to apex, finely striate, striæ punctured, intervals flat, finely transversely strigose and punctulate, clothed with whitish pubescence; color pale testaceous, more rarely slightly ferruginous, humeri always with dark spot, sides rarely infuscated. Pygidium elongate oval, oblique, moderately convex, coarsely punctured, clothed with whitish pubescence, near apex becoming dusky or variegated at base, and on each side near apex a smooth, impressed, elongate space. Body beneath pale testaceous, pectus and sides of abdomen dusky, punctulate and clothed with whitish pubescence. Legs pale testaceous, extreme tips of tibiæ and terminal tarsal joint piceous. Length .08 inch; 2 mm.

The above description applies to the large majority of the specimens, in which the thorax and elytra are darker in color the pubescence is variegated. On the thorax the pubescence is in great part sparse but along the median line behind and a small space on each side of the lobe, the pubescence is more dense. On the elytra also the pubescence of the striæ is transversely interrupted at irregular intervals.

This species resembles a diminutive *B. prosopis*, Lec., but the latter has the strong tooth and two denticles well defined.

Occurs in the seed of the Screw-bean, *Strombocarpus pubescens*, in Arizona.

B. aureolus. n. sp,—Oblong oval, black, densely clothed with yellowish-white lustrous pubescence. Head black, densely punctured, scarcely pubescent. Antennæ black, not as long as head and thorax. Thorax similar to the preceding species, coarsely punctured and rugulose, densely pubescent. Scutellum oblong, clothed with paler pubescence. Elytra similar in form to the preceding species, piceous or nearly black, densely clothed with yellowish-white lustrous pubescence, surface striate, striæ punctured, intervals flat, densely rugoso-punctate. Pygidium oval, oblique, moderately convex, densely punctured, clothed with yellowish-white pubescence with pale median line widest at base. Body beneath black, densely punctulate, more sparsely clothed with a whitish pubescence. Legs entirely black. Length .08—.10 inch; 2—2.5 mm.

The tooth of the hind femur of this species is small but acute at tip, the denticle scarcely perceptible, distant from the tooth. Resembles the preceding species in form, but differs in the color and vestiture, and like it has its larger analogue in the following group.

Occurs in the desert region of California. The food plant is unknown.

B. puperculus. Lec., Pacif. R. R. Report, App. i., p. 52.—Oblong oval, black, moderately shining, sparsely cinereo-pubescent. Head densely punctured, opaque. Antennæ longer than head and thorax, black, three basal joints piceous. Thorax nearly twice as wide at base as long, sides strongly arcuate in front, slightly sinuate near the hind angles, base slightly lobed at middle, lobe truncate, on each side nearly straight, surface coarsely punctured, intervals rugulose, sparsely cinereo-pubescent, inclining to brownish. Scutellum slightly

longer than wide, at middle longitudinally impressed, cinereo-pubescent. Elytra at base not wider than thorax, sides moderately arcuate, surface striate, striæ punctulate, intervals flat, densely punctulate and sparsely cinereo-pubescent. Pygidium oval, coarsely punctured and rugose, sparsely pubescent. Body beneath black, finely punctured, and clothed with finer pubescence than above. Legs black. Length .04—.06 inch; 1—1.5 mm.

In very well preserved specimens, which, however, are rarely seen, the pubescence of the elytra is not uniformly cinereous, the third interval has a short whitish line and two very indistinct interrupted bands of darker color cross the elytra, one near the base, the other behind the middle. This is one of the smallest species in our fauna.

The tooth of the hind femur is short but acute and the denticle very minute.

Not rare from San José to San Diego, California.

Group VII.

This group contains species in number nearly equalling all the other groups taken together. They are usually of elongate form. The hind femur has one moderately large tooth and always two denticles, the latter being usually distinct from the tooth itself, rarely arising from its vertical edge.

The following synoptic table will assist in the identification of our species, and as the characters made use of are drawn almost entirely from the colors of various parts of the body, care should be used to procure perfectly developed specimens, as the color (of the legs especially) is not otherwise to be depended upon.

Elytra rufo-testaceous frequently with black spots or patches.....1
Elytra entirely black or dark piceous.....2
1. Intervals of striæ with a row of sub-muricate punctures.....3
Intervals equally punctulate or punctulato-rugose.....4
3. Scutellum rounded or transverse.....5
Scutellum elongate.
Pygidium with short impressed line on each side near apex....**prosopis.**
Pygidium without lines.....**floridæ.**
5. Sides of elytra with large black spaces.....**protractus.**
Elytra uniform in color, or humeri alone darker.
Body beneath uniformly pale rufous in color.....**inornatus.**
Body beneath black, abdomen rufous.....**pectoralis.**
4. Elytra uniform in color, humeri rarely darker. Species moderate.
uniformis.
Elytra with black spot at middle of side. Species small.....**bisignatus.**
2. Black or piceous species.
Legs bicolored, anterior and middle usually rufous, hind legs black.....6
Legs all black.....7

7. Scutellum round, densely clothed with white.....**albosecutellatus.**
Scutellum more or less elongate.....8
8. Elytral striæ wide, deep and coarsely punctured at base.....**perforatus.**
Elytral striæ moderate.....9
9. Vestiture of elytra uniform in disposition and color.....10
Vestiture variable in color.
Cinereo-pubescent, obscurely maculate; intervals finely punctulate.
pauperculus.
Cinereo-pubescent, on the intervals interrupted; intervals with coarse punctures.....**distinguendus** ♂.
10. Elytra very sparsely pubescent.....**calvus.**
Elytra densely clothed, surface color nearly concealed.....**fraterculus.**
6. Thorax sparsely punctured, comparatively smooth; eyes flat.....**amicus.**
Thorax densely punctured; eyes convex.....11
11. Abdomen rufo- or piceo-testaceous.....**obsoletus.**
Abdomen and entire under surface black.....12
12. Pubescence of elytra unevenly disposed.....13
Pubescence evenly disposed, usually concealing the color of elytra.....15
13. Pubescence interrupted on the intervals by darker spaces.....14
Pubescence sparse forming sinuous designs.....**longistilus.**
14. Thorax roughly punctured; elytral intervals with coarse punctures.
distinguendus ♀.
Thorax not roughly punctured; intervals punctulate.....**hibisci.**
15. Hind legs entirely black; scutellum broad with white pubescence.
schraukiæ.
Hind legs bicolored; scutellum longer than wide.
Pubescence of elytra cinereous somewhat yellowish, unicolored **aureolus.**
Pubescence ochreous, clouded.....**mixtus.**

B. prosopis. Lec., Proc. Acad., 1858, p. 77.—Oblong, ferruginous, sparsely cinereo-pubescent, elytra with patches of brown along the lateral margin. Head brownish testaceous, coarsely punctured, sparsely cinereo-pubescent. Eyes with golden lustre. Antennæ as long as head and thorax, feebly sub-serrate, pale rufous. Thorax trapezoidal, very nearly as long as wide at base, sides straight, base lobed at middle and on each side slightly sinuate; surface coarsely punctured, punctures distant, median line finely impressed, sparsely clothed with cinereous pubescence clouded with brownish and with a narrow patch of white pubescence extending half way along the median line. Scutellum twice as long as wide, median line distinct, cinereo-pubescent. Elytra at base not wider than the thorax, sides slightly arcuate and diverging toward apex; surface striate, striæ punctured, intervals flat, punctulate and with a few coarse punctures distantly placed; color brownish testaceous, with darker patches along the sides; vestiture cinereo-pubescent, interrupted with very narrow transverse lines of brownish. Pygidium slightly oblique, coarsely punctured, clothed with cinereous pubescence clouded with brown, and on each side near the apex a dark brown, impressed line. Body beneath pale rufous densely whitish pubescent. Legs pale testaceous. Length .16 inch; 4 mm.

The dark patches along the side of the elytra are of irregular size and are usually four in number, in addition to which a space clothed

with darker pubescence is frequently seen near the scutellum and a very small space behind the middle on the third interval.

Occurs in the desert regions of California and Arizona, bordering the Colorado and Gila Rivers.

B. floridæ, n. sp.—Body oblong, brownish, sub-opaque, elytra with two transverse sinuous patches of cinereous pubescence. Head brownish, occiput nearly black, sparsely but coarsely punctured. Antennæ black, four basal joints rufous, gradually stouter to tip and as loug as head and thorax. Thorax trapezoidal, broader at base than long, sides moderately arcuate, surface coarsely and roughly punctured, a narrow median line of cinereous pubescence and with similar vestiture sparsely placed at the sides. Scutellum quadrate sparsely clothed with whitish hairs. Elytra oblong, feebly convex, at base not broader than the thorax, humeri feebly prominent, surface striate, striæ punctured, intervals flat, punctulate and with a few distant coarser punctures: color brownish, subopaque, with cinereous pubescence arranged in two transverse cinereous bands composed of short lines along the intervals. Pygidium moderately convex, coarsely but sparsely punctured and sparsely cinereo-pubescent. Body beneath brown but paler than above, sparsely cinereo-pubescent. Legs pale rufous. Length .12 inch; 3 mm.

Very distinct from any species in our fauna by the characters given. The sinuous bands composed of short lines are of irregular form, the median band being more distinct and sending a process along the fifth and sixth intervals to the base; the hinder band is narrower, sub-apical and less conspicuous than the median. The intervening spaces are not pubescent.

From Florida.

B. protractus, n. sp.—Oblong, parallel, pale rufo-testaceous, elytra with lateral black spaces; sparsely cinereo-pubescent. Head nearly black, moderately punctured. Antennæ pale rufous, feebly sub-serrate, longer than head and thorax. Thorax nearly as long as wide at base, sides moderately arcuate and slightly sinuate near the hind angles, base moderately lobed at middle, on each side slightly sinuate, sparsely cinereo-pubescent and with a small white spot on each side of the middle. Scutellum broader than long, with white pubescence. Elytra oblong, parallel, disc depressed; surface striate, striæ finely punctured, intervals flat, densely punctulate with a row of distantly placed coarse punctures; color brownish testaceous with large black spaces along the sides and a small round black spot on the centre of each elytron slightly behind the middle. Pygidium broadly oval, moderately convex, coarsely punctured, pale rufous, at middle with broad stripe of black constricted at middle, forming a figure 8, surface cinereo-pubescent at sides, median black space with a few whitish hairs along the middle and a more dense patch of pubescence on each side at the constriction Body beneath brownish, paler at the sides, sparsely clothed with whitish pubescence. Legs pale rufous, outer side of hind femur somewhat darker. Terminal abdominal segment broadly concave. Length .16 inch; 4 mm.

In style of elytral marking this species somewhat resembles *B. pro-*

sopis, it is, however, more elongate and parallel, with a broader scutellum and the last abdominal segment broadly concave.

One specimen from the Peninsula of Lower California.

B. inornatus. n. sp.—Moderately robust, pale rufo-testaceous, sparsely but evenly clothed with cinereous pubescence. Head densely but not coarsely punctured. Antennæ as long as head and thorax, pale rufo-testaceous. Thorax nearly as long as wide at base, sides moderately arcuate and gradually converging from base to apex, base lobed at middle, lobe broadly rounded; surface coarsely and sparsely punctured, sparsely cinereo-pubescent. Scutellum short, small, transverse, sparsely clothed with whitish pubescence. Elytra at base not broader than thorax, conjointly nearly as wide as long, sides moderately arcuate, moderately striate, striæ punctured, intervals flat, densely punctulate and with a row of distant coarser punctures; color pale rufous, sparsely clothed with cinereous pubescence. Pygidium broadly oval, finely rugulose sparsely pubescent. Body beneath and legs pale rufous, sparsely cinereo-pubescent. Length .16 inch; 4 mm.

Easily known from all the species of the group by its broad scutellum, pale rufous color which is the same above and beneath, and the pubescence which does not conceal the surface color and yet is not dense.

One specimen, Middle States.

B. pectoralis, n. sp.—Oblong oval, moderately robust, rufous, meso- and metasterna black, elytra finely striate, clothed with fine whitish-yellow, silken pubescence. Head punctured, front sub-carinate, black, occiput rufous. Antennæ as long as head and thorax, subserrate, black, three basal joints rufous. Thorax trapezoidal, scarcely wider at base than long, sides nearly straight, base at middle feebly lobed; surface moderately convex, sparsely sub-muricately punctured and rugulose, and sparsely clothed with short silken pubescence of variable color from whitish to rufous. Scutellum small, round, pubescence whitish. Elytra at base not wider than thorax, surface finely striate, striæ finely punctured, intervals flat, densely punctulato-strigose and with an obsolete row of coarse punctures on the middle of each interval; color rufous, humeral region and epipleuræ darker, pubescence silken, yellowish, at apex inclining to brown. Pygidium equilateral, triangular, sparsely punctured and clothed with whitish pubescence. Body beneath black, abdomen rufous, sparsely clothed with whitish pubescence. Legs pale rufous, bases of hind femur and tibia piceous. Length .12 inch; 3 mm.

This is the only species in the present group in which the pubescence has a silken lustre. The elytra are also more finely striate than is usual in the genus.

One specimen, Texas.

B. uniformis, Lec. Proc. Acad., 1858, p. 77.—Elongate oval, more attenuate in front, rufous, clothed with cinereous yellow pubescence nearly concealing the surface color. Head rufous, punctulate, front obsoletely subcarinate. Antennæ scarcely as long as head and thorax, rufous. Thorax nearly as long as

wide at base, trapezoidal, sides nearly straight, slightly rounded near the front angles and with a fine impressed line parallel with the anterior margin not extending along the upper surface; base feebly lobed at middle, on each side slightly sinuate; surface sparsely punctured and clothed with yellowish-white pubescence with a fine line of white along the middle. Scutellum twice longer than wide, with distinct median line, pubescence white. Elytra at base not wider than the thorax, rather rapidly widening with sides arcuate, surface finely striate, striæ finely punctured and rather deeper at base; intervals flat, densely and finely punctulate, and densely clothed with pubescence of an uniform dirty white color. Pygidium broadly oval, sparsely punctured and clothed similarly to the elytra. Body beneath piceo-rufous, abdomen rufous, sparsely whitish pubescent. Legs pale rufous. Length .20 inch; 5 mm.

The humeri are frequently tipped with piceous. This species is one of the largest of the group, and is a reproduction on a large scale of *B. desertorum* of the preceding group.

Deserts of the Colorado and Gila Rivers of California and Arizona.

B. bisignatus. n. sp.—Oblong oval, black, elytra rufous with humeral and large lateral spot at middle, piceous. Head black, opaque, finely punctulate, front finely carinate. Antennæ as long as head and thorax, black, basal four joints rufous, subserrate. Thorax broader at base than long, sides strongly arcuate in front, at base feebly sinuate; base feebly lobed at middle; surface coarsely punctured and sparsely clothed with brownish hair varied with a whitish patch in front of scutellum, a small space on each side of middle and a very white small patch at the middle of each side. Scutellum subquadrate, median line distinct, clothed with whitish pubescence. Elytra at base not wider than the thorax, sides feebly arcuate, surface striate, striæ finely punctured, interspaces very finely punctulate; color rufous with humeral piceous spot extending, by a narrow band, along the margin to the middle and ending in a moderately large spot of acutely oval form which extends inwards to the fifth or fourth stria, inner apical angle also narrowly piceous; surface clothed with yellowish-white pubescence, paler along the third interval and behind the lateral spot; pale pubescence of third interval thrice interrupted by brownish spaces. Pygidium oval, sparsely punctulate, clothed with yellowish-white pubescence, paler at the sides. Body beneath black, moderately shining, sparsely punctulate, and pubescent with white. Legs pale rufous, middle and hind femora piceous at base. Length .08 inch; 2 mm.

Easily known from all other species of this group, with the elytra of varied color, by the entirely black under surface.

Three specimens from Kansas.

B. albosecutellatus. n. sp.—Oblong oval, moderately robust, black, sparsely cinereo-pubescent, pubescence of the intervals interrupted. Scutellum round, conspicuous, densely clothed with white pubescence. Head black, opaque, densely punctulate. Antennæ longer than head and thorax, subserrate, black, four basal joints somewhat paler. Thorax broader than long, sides feebly arcuate and scarcely narrower in front; base feebly lobed at middle, on each side sinuate; surface coarsely punctured, very sparsely whitish pubes-

cent and with a minute whitish spot on each side of middle. Scutellum round, conspicuous, densely clothed with white. Elytra slightly longer than wide, at base not wider than the thorax, sides moderately arcuate, black, feebly shining, surface striate, striæ punctured at bottom, intervals flat, minutely punctulate, sparsely clothed with whitish pubescence, forming short transversely interrupted lines, with a line on the third interval longer. Pygidium broadly oval, very convex, black, opaque, coarsely and sparsely punctured and finely rugulose, and very sparsely whitish pubescent. Body beneath black, more shining than above, sparsely whitish pubescent. Legs black, anterior and middle tibiæ piceous. Length .10 inch; 2.5 mm.

This species may be known at a glance by the round scutellum densely clothed with white pubescence forming a very conspicuous character when the specimen is examined under moderate power. The elytral ornamentation is not peculiar as our other species (*B. hibisci*) is similarly marked. The differences between the latter and the present species will be mentioned in detail under that head.

Occurs in Georgia, Louisiana and Missouri.

B. perforatus, n. sp.—Moderately robust, black, opaque, very sparsely clothed with short white pubescence. Head black, moderately elongate, coarsely punctured, opaque. Antennæ longer than head and thorax, black, basal joints piceous beneath, sub-serrate. Thorax trapezoidal, disc very convex, moderately shining, coarsely punctured, sparsely pubescent with silken white hairs, sides feebly arcuate and gradually convergent to apex; base slightly broader than the length of the thorax, at middle very feebly lobed. Scutellum longer than wide, median line distinctly impressed, clothed with silken white hairs. Elytra at base not wider than thorax, as wide at middle as long, sides moderately arcuate, surface deeply and rather broadly striate, striæ very coarsely punctured, especially at base, intervals flat, roughly punctured and with a row of coarse punctures along the middle; color black, moderately shining, very sparsely clothed with silvery pubescence. Pygidium elongate oval, oblique, coarsely punctured, sparsely pubescent. Body beneath black, moderately shining, more evidently pubescent than the upper surface. Legs entirely black. Length .10 inch.

The color of the surface is not at all concealed by the pubescence. The elytra are more deeply striate than is usual except in the earlier groups, and the punctures at base, especially, deeply impressed. The striæ at apex are also deep, while in most species the striæ gradually weaken toward the apex.

Two specimens are before me from the cabinet of Mr. Ulke, one from an unknown locality, the other from Arizona.

B. pauperculus, Lec. (see preceding group).—This species is introduced here to note a larger and more developed variety, in which the hind thighs have a well defined tooth and two denticles. The elytra are clothed with cinereous pubescence obscured by two bands of darker color crossing the elytra near the base and behind the middle, composed of spaces of irregular rounded

form. The form and sculpture agree in the larger and smaller specimens, which differ only in size. Length .10 inch: 2.5 mm.

Abundant everywhere in California, from San Francisco southward.

B. distinguendus, n. sp.—Form robust, color black, sparsely cinereo-pubescent, elytra with pubescence irregularly arranged. Head black, opaque, finely rugulose. Antennæ somewhat longer than the head and thorax, sub-serrate, black, second and third joints small moniliform ♂, third joint longer ♀. Thorax slightly broader at base than long, sides moderately arcuate and gradually narrowed to the front, base feebly lobed; surface coarsely punctured, at sides irrorate with patches of cinereous pubescence, median space scarcely pubescent. Scutellum longer than wide, median line not impressed, clothed with whitish pubescence. Elytra conjointly as broad as long, sides strongly arcuate, at base becoming rapidly broader than the thorax, surface striate; striæ at bottom punctured, intervals flat, finely rugulose and with a row of coarse punctures and clothed with cinereous pubescence broadly interrupted. Pygidium broadly oval, coarsely punctured, sparsely cinereo-pubescent. Body beneath black, sparsely pubescent. Legs all black ♂, anterior and middle pair rufous ♀. Length .10 inch; 2.5 mm.

This species has the robust form of some of the species of Group IV.

Two specimens, Georgia.

B. calvus, n. sp.—Oblong oval, black, very sparsely cinereo-pubescent. Head black, finely punctured, opaque. Antennæ as long as head and thorax, black, sub-serrate. Thorax slightly broader at base than long, sides moderately arcuate and gradually narrowed to apex, base feebly lobed at middle: surface finely ruguloso-punctate, and very sparsely pubescent. Scutellum small oval, with white pubescence. Elytra conjointly less wide than long, gradually becoming broader at base, sides moderately arcuate; surface shining, finely striate, striæ indistinctly punctured, intervals flat, finely punctulate, very sparsely cinereo-pubescent. Pygidium nearly equilateral, feebly convex, coarsely punctured, cinereo-pubescent. Body beneath and legs black, finely and sparsely pubescent. Length .08 inch; 2 mm.

More shining and less pubescent than any species of the group.

Massachusetts and Tennessee.

B. fraterculus, n. sp.—Black, moderately shining, form moderately robust, surface not densely clothed with cinereous pubescence, giving the surface a pruinose appearance. Head black, opaque, epistoma coarsely punctured, occiput and vertex with few fine punctures. Antennæ black, basal joint piceous, as long as head and thorax, feebly sub-serrate. Thorax one-fourth wider at base than long, sides feebly arcuate and gradually narrowed to apex; base moderately lobed at middle; disc moderately convex, coarsely and rather roughly punctured, very sparsely pubescent. Scutellum longer than wide, median line distinct. Elytra slightly longer than wide conjointly, sides moderately arcuate, surface striate, striæ punctured, intervals flat, densely punctulate, at base somewhat rougher, sparsely cinereo-puaescent. Pygidium oval, moderately convex, coarsely and sparsely punctured and pubescent. Body beneath black, moderately shining, sparsely pubescent. Legs black. Length .08—.12 inch; 2—3 mm.

Closely allied to some of the paler forms of *B. aurcolus*, but with entirely black legs. The pubescence is also less dense and finer, and the form more robust. In the table it appears closely allied to *B. calvus*, but the latter has scarcely any pubescence and the surface much more shining and the form more attenuate in front. The pubescence of *B. calvus* is not as might be inferred, lost by abrasion but very sparsely scattered over the entire surface and regularly disposed.

Specimens are abundant from the plains of Kansas, Nebraska and Colorado.

B. amicus, n. sp.—Oblong, black, moderately shining, densely clothed with silken white pubescence. Head oval, sparsely punctured, eyes scarcely more prominent than the adjacent surface. Antennæ as long as head and thorax, feebly sub-serrate, black, four basal joints pale rufous. Thorax one-half broader at base than long, sides moderately arcuate and gradually convergent to apex, basal lobe broadly rounded, disc moderately convex, a small shallow depression in front of basal lobe; surface comparatively smooth, moderately shining, very sparsely punctulate, intervals densely and and very minutely punctulate, surface color almost entirely concealed by silken white pubescence. Scutellum small, broader than long, with white pubescence. Elytra conjointly at middle as broad as long, at base slightly broader than the thorax, sides moderately arcuate; disc flatteued, striate, striæ punctured, intervals flat, punctulate, and with coarser punctures at base, clothed with silken white pubescence. Pygidium oblong oval, feebly convex, sparsely punctured and pubescent. Body beneath black, abdomen dark rufous, sparsely punctulate and pubescent. Femora rufous, at base piceous, tibiæ and tarsi piceous. Length .20—.22 inch; 5—5.5 mm.

One of our largest species, having the form of *B. prosopis* and *B. uniformis*. In mature specimens the color is dark piceous, frequently, however, specimens occur in which the thorax is partially rufous and also the middle of the base of each elytra. It has the most smoothly sculptured thorax of any species in our fauna.

Occurs in Texas and Arizona.

B. obsoletus, Say, Curc., p. 3; Am. Ent. Edit., Lec., p. i., p. 261; *obtectus*, Say, Curc., p. 1; Am. Ent., p. 259; *fabæ*, Riley, Annual Report, Ins., Missouri, 1871, p. 52; *varicornis*, Lec., mss.—Form moderately robust, color black or very dark piceous, moderately shining, clothed with dark cinereous pubescence, abdomen dull rufous. Head black, opaque, finely punctured, sparsely pubescent, front feebly sub-carinate. Antennæ slightly longer than head and thorax, sub-serrate, black, four basal and the terminal joint rufous. Thorax one-third wider at base than long, moderately convex, sides arcuate and gradually narrowed to tip, base lobed at middle, lobe slightly emarginate; surface coarsely and sparsely punctured, a slight longitudinal impression in frout of scutellum, moderately clothed with coarse dark cinereous pubescence, paler along the median line. Scutellum subquadrate, emarginate at tip, median line distinct, cinereo-pubescent. Elytra conjointly not wider than long, disc feebly convex,

at base not wider than the thorax, sides feebly arcuate, surface striate, striæ punctured, intervals flat, densely punctulate and clothed with coarse cinereous pubescence of darker color along the base and interrupted by transverse bands of darker color, third interval with a more conspicuous white line interrupted by the two obscure bands. Pygidium rufous, nearly vertical, broadly oval, coarsely punctured, sparsely cinereo-pubescent, pubescence more dense along the middle and at the sides. Body beneath black, sparsely pubescent, abdomen rufous. Legs rufous, under side of hind femur piceous. Length .10—.14 inch; 2.5—3.5 mm.

This is the most abundant species of Bruchus over the region east of the Rocky Mountains. The pubescence of the elytra is somewhat variable in color, the specimens from the Southern States exhibit the markings in their most perfect condition. In specimens not discolored by alcohol, the intervals are alternately of darker color but not conspicuously so, the third interval is decidedly more white than the rest and interrupted at basal fourth and apical third by a brownish spot. The pubescence on the other intervals is also similarly but less conspicuously interrupted and the pubescence then forms two irregular bands. The hind femur is conspicuously armed with a moderate tooth and two denticles.

The equivalency of Mr. Riley's specimens with *obsoletus* has been determined by typical specimens from that author, and it is to be regretted that another synonym, must thus be added, made in defiance of the views of those who have made Say's descriptions a close study. This error is all the more inexcusable as the *obsoletus*, by Mr. R's. determination is Say's *transversus* (= *hibisci*, Oliv.).

The catalogue name *varicornis* has been added to the synonymy as specimens have been so labelled in many cabinets.

In the "Third Annual Report on the Noxious, Beneficial and other Insects of the State of Missouri," 1871, Mr. Riley gives an excellent account of the habits and ravages of this insect, pp. 52—56.

Abundant over a large extent of our country.

B. hibisci, Oliv., Ent. iv. 79, p. 21, No. 28, pl. 3, fig. 28, a, b; Schönh. Curc. i., p. 101. *Transversus,* Say. Curc. p. 3; Am. Ent. Edit. Lec. Vol. 1, p. 261. Robust, broadly oval, black, moderately shining, sparsely cinereo-pubescent, interrupted on the elytral interspaces. Head black, sparsely punctured and pubescent. Antennæ as long as head and thorax, pale rufous, joints 4—9 often slightly darker. Thorax twice broader at base than long, sides strongly arcuate and rapidly converging in front, base moderately lobed at middle; surface moderately shining, sparsely punctured and pubescent. Scutellum at tip bifid, median line distinct, clothed with whitish pubescence. Elytra as broad conjointly as long, sides moderately arcuate, disc convex, surface finely striate, striæ punctured, intervals flat, punctulate, and with a few coarser punctures,

sparsely cinereo-pubescent, pubescence frequently and irregularly interrupted by transverse nude spaces at the positions of the coarse punctures. Pygidium black, broadly oval, sparsely punctured and pubescent. Body beneath black, moderately shining, sparsely pubescent. Anterior and middle legs rufous, hind legs nearly black, hind femur at tip rufous and armed beneath with a tooth and two denticles on its vertical face. Length .10 inch; 2.5 mm.

In form and the arrangement of the elytral pubescence this species resembles *alboscutellatus*, from which it may at a glance be distinguished by the form of the scutellum. The thorax is less punctured and more smooth than any species except *amicus*. Say, in his description, admits but one tooth to the hind femur, but on examination I find two denticles quite distinct on the vertical face of the tooth, a character unknown to any other of our species.

Occurs in Pennsylvania, Georgia and Tennessee.

B. longistilus, n. sp.—Oblong oval, black, shining, sparsely pubescent with white forming on the elytra an X-like design. Head black, sub-opaque, densely punctulate. Antennæ slightly longer than the head and thorax, gradually thicker to tip, black. Thorax wider at base than long, sides rather strongly arcuate and gradually narrowing to apex, base feebly lobed, surface moderately shining, densely puuctured, very sparsely pubescent with white, more evident between the sides and middle. Scutellum small, sub-quadrate, sparsely pubescent with white. Elytra longer than wide, sides slightly arcuate and somewhat broader behind the middle, surface moderately shining, striate, striæ finely punctured, intervals flat, densely punctulate, very sparsely pubescent with white, third interval with a very evident white line, diverging from which on each elytron are two white lines, one directed forward, the other backward, forming together a design, X-like in form. Pygidium broadly oval, black, moderately convex, sparsely punctured and with very little pubescence. Body beneath black, moderately shining, with sparse pubescence at the sides. Anterior and middle tibiæ pale rufous, their femora rufous and piceous at base, hind femur piceous tipped with rufous, hind tibiæ rufous, short, terminal style very long and slender, tarsi of all the legs piceous. Length .08 inch; 2 mm.

One of our smallest, yet a very distinct species. The hind tibiæ, are shorter and rather stouter than usual, and the spur more than half the length of the tibia.

Two specimens, District of Columbia and Tennessee. Ulke.

B. Schraukiæ, n. sp.—Oblong oval, black, moderately shining, sparsely cinereo-pubescent. Head black, sub-opaque, finely punctured, sparsely pubescent. Antennæ. . . . . two basal joints (alone remaining) rufous. Thorax one-third broader at base than long, sides moderately strongly arcuate and suddenly narrowing at apex, base moderately lobed at middle, surface coarsely punctured and cinereo-pubescent. Scutellum broader than long, with white pubescence. Elytra at base not wider than the thorax, sides continuing regularly the curve of the sides of the thorax, humeral protuberance obliterated;

surface finely striate, striæ feebly punctured, intervals flat, densely punctulate, and finely cinereo- pubescent. Pygidium broadly oval, feebly convex, coarsely punctured and sparsely pubescent. Body beneath black, sparsely pubescent. Anterior and middle tibiæ pale rufous, femora piceous, hind legs black Length .10 inch; 2.5 mm.

Closely resembling *B. calvus*, but more regularly elongate oval in form, with smaller scutellum and with pale front legs.

One specimen from Mr. C. V. Riley, who obtained it from the *Schrankia uncinata*, near St. Louis, Missouri.

B. aureolus (see preceding group).—The form here noted in the synoptic table corresponds with the larger and more fully developed forms of *B. pauperculus*, also of the preceding group, and are merely noticed in this place because many of the specimens have two very distinct denticles and might be supposed to be undescribed, in the absence of the smaller form.

Occurs in Owen's Valley on the flowers of Astragalus.

B. mixtus, n. sp.—Resembles the preceding in form and sculpture and differs as follows:—Thoracic pubescence ochreous, becoming cinereous at the sides and with a minute whitish spot on each side of the middle and median line whitish. Scutellum elongate oval, pubescence white. Elytra with ochreous pubescence slightly shaded with cinereous and with a short white line on the third interval. Legs pale rufous, hind femur at base and last two tarsal joints piceous. Length .08 inch; 2 mm.

Collected in Utah.

Group VIII.

The hind thighs in this group have a strong tooth, usually rather long and acute, and three denticles also longer than usual placed at a moderate distance from the tooth. We have in our fauna three species of which two have stout femora closely resembling those of *B. mimus*.

B. musculus. Say, Curc., p. 3; Am. Ent. Ed. Lec. i., p. 261.—Black moderately robust, clothed with cinereous hair. Head black, coarsely punctured, sparsely pubescent. Eyes very deeply divided. Antennæ longer than head and thorax, gradually thicker to tip, frequently entirely pale rufous, usually with joints 6—10 piceous, terminal joint always rufous. Thorax wider at base than long, sub-campanulate, rapidly narrowing from base to apex, base moderately lobed at middle, on each side slightly sinuate, coarsely and densely punctured and sparsely pubescent. Scutellum sub-quadrate with whitish pubescence. Elytra sub-quadrate, disc flattened, rather deeply striate, striæ punctured, intervals flat, densely punctulate, cinereo-pubescent, the third interval behind the middle with a more evident whitish line. Pygidium triangular, coarsely punctured, sparsely cinereo-pubescent, more distinct along the middle. Body beneath black, finely punctured and sparsely pubescent. Legs testaceous, middle femur to middle, and hind femur and tibiæ entirely piceous. Length .08—.10 inch; 2—2.5 mm.

Resembles *B. mimus* in form, but abundantly distinct by the char-

acters above given. In well preserved specimens the pubescence of the thorax is more evident along the middle and at the sides.

Occurs in Georgia.

B. placidus. n. sp.—Moderately robust, ferruginous, sparsely clothed with pale yellowish hair. Head coarsely punctured, vertex moderately convex, scarcely punctured. Antennæ pale rufous, slightly longer than head and thorax. Thorax at base one-third wider than long, sides arcuate in front, slightly sinuate near the base; base moderately lobed at middle, on each side slightly sinuate; surface coarsely punctured, and sparsely pubescent with intermixed cinereous and yellowish hairs. Scutellum broader than long with whitish pubescence. Elytra slightly longer than wide, disc feebly convex, sides moderately arcuate, surface finely striate, striæ scarcely punctured, intervals flat, densely punctulate and sparsely clothed with slightly yellowish pubescence. Pygidium broadly oval, moderately convex, coarsely punctured and sparsely pubescent. Body beneath ferruginous, sparsely cinereo-pubescent. Legs rufo-testaceous, hind femora stout with one tooth and three denticles. Length .12 inch; 3 mm.

Entirely distinct by the pale ferruginous color. The elytra are not of uniform color in all specimens as indistinct patches of somewhat darker color are seen. The eyes are much less deeply emarginate than the preceding species and the form less quadrate.

Arizona and Texas.

B. exiguus. n. sp.—Oblong oval, black, elytra in great part rufous, clothed with cinereous pubescence. Head black, opaque, densely punctured. Antennæ black, four basal joints testaceous, as long as head and thorax. Thorax one-third wider at base than long, sides moderately arcuate anteriorly, front of base feebly sinuate; base at middle moderately lobed on each side slightly sinuate, surface black, coarsely punctured, very sparsely cinereo-pubescent, with four small spots more densely pubescent, one on each side of the median lobe and one on each of middle. Scutellum small, oval, sparsely cinereo-pubescent. Elytra oblong oval, gradually broader to apex, surface finely striate, striæ indistinctly punctured, intervals flat, densely punctulate, irregularly clothed with cinereous pubescence; color rufous, sides narrowly piceous. Pygidium broadly oval, coarsely punctured, moderately convex, rufous sparsely cinereo-pubescent. Legs pale rufous. Length .08 inch; 2 mm.

A minute species recalling *B. bisignatus* of the preceding group.

Two specimens, Kansas.

Group IX.

This group contains only small species characterized by the almost total obliteration of the denticles of the hind femur. The denticles, however, are always seen, but reduced to merely small tubercles. The hind femur is moderately dilated, or the species might have been included in Group IV., where, however, the male antennæ are always (in our fauna) pectinate. Two species occur in our fauna.

B. seminulum, n. sp.—Oblong oval, black, clothed with pale cinereous pubescence. Head black, opaque, finely punctulate. Antennæ not as long as head and thorax, black, basal joints piceous. Thorax wider at base than long, sides very feebly arcuate and gradually narrowing to apex; base feebly lobed at middle, coarsely punctured, sparsely pubescent. Scutellum small, oval, cinereo-pubescent. Elytra oblong, gradually wider to apex, moderately striate, striæ punctured, intervals flat, finely punctulate, with a row of distant coarse punctures on each, and clothed sparsely with cinereous pubescence. Pygidium oblong oval, sparsely punctured, cinereo-pubescent. Body beneath and legs black, sparsely cinereo-pubescent. Length .06 inch; 1.5 mm.

One of the smallest species known to me. Resembles some of the diminutive forms of *B. pauperculus*, but is more elongate and clothed with coarse pubescence of an uniform cinereous color.

Occurs over a wide extent of country, specimens being known from Pennsylvania, Nebraska, Dacota and California.

B. macrocerus, n. sp.—Oblong oval, black, moderately shining, sparsely clothed with whitish pubescence. Head oval, black, opaque, densely punctulate. Antennæ one-fourth longer than the entire body, slender, feebly subserrate, black. Thorax slightly wider at base than long, sides feebly arcuate, base feebly lobed at middle, surface opaque, densely punctured, very sparsely pubescent with white. Elytra slightly wider at base than thorax, conjointly nearly as wide as long, sides feebly arcuate, surface striate, striæ punctured, intervals flat, finely rugosely punctured and very sparsely clothed with white pubescence, with a more evident short line on the third interval. Body beneath black, sparsely pubescent. Legs black. Length .08; 2 mm.

A very distinct and singular species, and may be known from any in our fauna by the extreme length of the antennæ.

District of Columbia and Tennessee. Ulke.

The following species are said to have been collected in California, but from the fact that many of the species described by Boheman had erroneous localities assigned them, it is probable that these too have been misplaced. They are probably from the west coast of South America.

B. ramicornis, Boh. Voy. Eugenie, Ins., p. 112.
B. californicus, Boh. l. c., p. 114.
B. atomarius, Boh. l. c., p. 114.

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Descriptions of DIURNAL LEPIDOPTERA found within the United States.

BY WM. H. EDWARDS.

Satyrus Wheeleri, n. sp.

Male.—Expands 2.3 to 2.5 inches. Upper side light yellow-brown, clouded with dark brown, especially on the disks of each wing, the dark portion forming a broad band on primaries, a narrow one on secondaries, well defined outwardly but within fading insensibly into the ground color; hind margins edged by a pale line, preceded by a dark one, and at some distance by a dark common stripe, sometimes macular on secondaries; primaries have a broad extra-discal band as in *Alope*, but pale brown, in which are two large black ocelli, the upper one (in all cases under inspection) sub-pyriform, as if two spots of unequal size had been compressed into one, and encloses two white points; the lower ocellus is larger, rounded, with white points; both are enclosed in narrow yellow rings; secondaries usually have three ocelli, but sometimes the one next anal angle is wanting; these spots are placed on the sub-median and two next preceding interspaces; the middle one is round, about one-tenth inch in diameter, with white point and yellow ring; the others are usually mere black dots.

Under side whitish, covered with abbreviated brown streaks, most dense from base to middle of disk on primaries, but equally distributed over whole of secondaries, both wings being crossed by an irregular extra-discal brown stripe, besides which secondaries have a second similar stripe nearer the base; the ocelli of primaries as on upper side, but surrounded by broader and paler rings which coalesce; secondaries have three ocelli near costa, the two outer ones small, round, the other oval, all with white dots and yellow circlets; the three ocelli next anal angle distinct, also with dots and circlets.

Body yellow-brown; legs same; palpi darker; antennæ brown with fine white annulations; club ferruginous.

Female, not known.

From nine males taken by the naturalists of Lieutenant Wheeler's Expedition, 1871, between the Cascade and Rocky Mountains, but the precise locality not indicated. This fine species is one of the largest, equalling the largest specimens of *Alope*, and may at once be distin-

guished from any other North American *Satyrus* yet known by its pale color and clouded surface, and by the whitish color of under surface, and conspicuous brown transverse stripes. The ocelli also are different from those of our other large species, having small white pupils, and the upper one on primaries being peculiar in shape and doubly pupillated.

Thecla Crysalus. n. sp.

Male.—Expands 1.5 inch. Upper side purple, the hind margins of both wings and costal of secondaries broadly edged with black; the costal margin of primaries narrowly, and depending from this, on the disk, is a large sub-rectangular black spot; within the marginal border of primaries, next inner angle, a fulvous maculate band terminating above on the lower median interspace, broken into four spots, the upper one round and separated by a little space from the next; this last is duplex and one or both parts shows a black central spot; at the angle a triangular spot; at anal angle of secondaries are two oval fulvous spots with black pupils; tail long, black, tipped with white; fringes grey, becoming whitish at anal angle.

Under side brown with a faint tint of purple; both wings edged by a pale line that becomes distinct and white on posterior half of secondaries; primaries have a sub-marginal macular black band preceded by a white line and corresponding in position to the anterior edge of the black border of upper side; the fulvous spots repeated; a second band of dark brown, extra-discal and continuous, extends from costa to lower median and if protracted would strike the inner angle; this band is edged posteriorly by white; on the arc a brown bar, edged on either side by white; secondaries have a marginal series of spots, the one on lower median interspace fulvous anteriorly, replaced next margin by brown on which are thickly sprinkled metallic blue scales, and sending a fulvous spur up the abdominal margin, the spot in second median interspace large, fulvous, with black pupil, separated from the margin as on the spot before described; sometimes on the upper median interspace are a few fulvous scales, but often not, and the whole space is irrorated with the blue and white scales; beyond to outer angle the spots are obsolete, a few scattered blue scales only appearing; at anal angle a round black spot; anterior to the marginal spots is a black crenated line, only distinct over the fulvous spots, preceded by a line of metallic blue which is replaced by white towards outer angle; on the disk a blackish-brown line, bordered posteriorly by

a white line, crosses the entire wing, nearly straight from costal edge to first branch of median, then zigzag and terminating high up abdominal margin; on arc a bar like that on primaries and towards base a dark brown stripe edged anteriorly by white, extending from costal to median nervures.

Body black above, white beneath; legs and palpi white; antennæ annulated black and white; club black, tip ferruginous.

Female.—1.6 inch. The black costal spot enlarged and extended to middle of hind margin, cutting off a sub-apical purple space; otherwise as in male. On under side the bands are heavier and more distinct.

From 2 ♂, 1 ♀, taken at Lake Paso, 7th August, 1871, by Mr. J. H. Allen, and in the collection of the Museum of Comp. Zoology, Cambridge.

Lemonias Cythera, n. sp.

Male.—Expands 1.1 inch. Upper side of primaries copper-red except a broad band on hind margin and at apex, where the color is fuscous; of secondaries fuscous, both wings have a sub-marginal row of points on the fuscous ground posterior to which are small round black spots, distinct on secondaries, hardly so on primaries; primaries have a large, irregular, white spot in middle of cell, edged on either side by black; a smaller spot below this on inner margin and a white point on same margin near base, both edged basally by black; there is also a black point in cell near base; across the disk a sinuous black stripe, on the outer side of which, near costa, are two white spots and a third in the second median interspace; secondaries have a white spot on costa, another in cell, a smaller one near abdominal margin, the three being in line; also a white point between the last mentioned spot and base; two small copper-red spots in cell near base, and a large one across the middle of the disk, not reaching either margin, its outer edge rounded and parallel to hind margin, and its inner edge excavated by a deep sinus opposite the cell; fringes long, alternate fuscous and white.

Under side of primaries deep orange from base to margin; the spots repeated; the discal row complete, six spots in all, but the two middle ones minute, each edged basally with black; on hind margin a series of abbreviated white stripes on the interspaces, starting from the marginal edge, each of which includes a blackish point.

Secondaries light brown on disk, white next base, the white shade passing through and beyond the cell and also along abdominal margin; along hind margin a series of white spots, rather indistinct, some of which include black points; across the disk a sinuous row of white spots except where the ground is white, each spot edged basally by black; within the white spaces are black marks or points, on line with the black edges of the spots; beyond the cell, on the white ground, two black marks form a V, pointing to base, and not quite, joining at the angle; several black points near base.

Body fuscous above, collar fulvous; beneath pure white; legs and palpi white; antennæ annulated black and white, club brown above white below; tip fulvous.

From three males taken in Arizona by Lieut. Wheeler's Expedition, 1871.

Hesperia Chusca. n. sp.

Male.—Expands 1 inch. Upper side yellow fulvous, with a narrow fuscous serrated border to both wings; two of the serratures wanting opposite cell of primaries; stigma velvety black, thick, curved, presenting convex side to base, and having at its lower extremity a small separated (or nearly) spot in the direction of base; a small fuscous patch posterior to stigma.

Under side pale, secondaries rather ochraceous; immaculate.

From a single ♂ brought from Arizona by Lieut. Wheeler's Expedition of 1871.

Hesperia Yuma, n. sp.

Male.—Expands 1.3 inch. Upper side ochre-yellow, immaculate; stigma long, narrow, nearly straight, covering the whole arc; costal edge of secondaries fuscous.

Under side paler, fuscous at base of primaries; otherwise immaculate.

Body fuscous above, ochraceous below; legs brown; palpi ochraceous; antennæ fuscous above, ochraceous below, and the club to tip is brownish-yellow.

From a single male received from Arizona by Lieut. Wheeler's Expedition of 1871.

Lycæna Melissa, n. sp.

Male.—Expands 1.1 inch. Upper side clear pruinose-blue, silvery on costa of primaries; hind margins edged with black, sometimes very

narrowly on both wings, but sometimes secondaries are rather broadly edged, and the margin of the blue ground is erose or irregularly crenate.

Under side uniform whitish buff, slightly bluish at base of secondaries; both wings edged by a black line, which is a little expanded on each interspace, especially on secondaries; primaries have a row of brown marginal points, above each of which is an orange spot; of these the second and third from inner angle are largest, the others of nearly equal size; each of these orange spots is surmounted by a straight black bar; across the disk a bent row of six black spots, nearly equal, rounded or sub-ovate, the upper spot at some distance from costal edge, each edged by a shade paler than the ground; on arc a reniform spot; secondaries have a complete sub-marginal row of large orange spots, at the outer edge of each of which is a black spot, nearly or quite covered with metallic pale green scales; and over each orange spot is a black crescent; a doubly bent row of small rounded black spots crosses the disk; on arc a straight spot, and three small round spots half way between this and base, on a straight transverse line, besides a fourth spot, minute, on abdominal margin, a little in advance of the line.

Body above blue, beneath white slightly bluish; legs same color; palpi white with black hairs in front, the upper joint black with white tip; antennæ annulated black and white, club fuscous, reddish on under side at tip.

Female.—Expands 1.2 inch. Upper side sometimes dark brown, sometimes, often with dark metallic scales sprinkled over base of secondaries pale yellow-brown; both wings have a complete orange band, which on primaries is of even width, though differing in individuals, sometimes being quite broad, arcuate posteriorly, having next the margin a row of brown semi-circular spots; sometimes these are confluent and then present the appearance of a band, with wavy anterior edge; the orange band of secondaries is broadest on middle of the limb, and lessens either way to its extremities, enclosing posteriorly a marginal row of round fuscous spots, between which and the edge of margin is a strip of the brown ground; under side sometimes similar to male, but sometimes quite ochraceous.

From many specimens taken in Colorado by Mr. Mead, in the summer of 1871. I have also received this species from Nevada, and from Arizona by Lieut. Wheeler's Expedition of 1871.

L. Melissa belongs to same group with *Scudderii*, and *L. Anna* and *Acmon*.

It may be distinguished from *Scudderii*, of which species the male is very like *Melissa* above, by the presence of orange spots on primaries below, in *Melissa*, and wanting in the other, and by the greater curvature of the discal row of spots on primaries. The females differ widely, that of *Scudderii* being blackish with anal ocelli, while *Melissa* is brown with a band of orange to both wings.

It also resembles *Anna* ♂ in the color of primaries above, but is a smaller species, is of a different color beneath, *Anna* being white. It is also slightly marked, the marginal spots on primaries being faint, without orange, and those of secondaries separated, the orange spots lunular, faint, each edged above with a black spot more deeply convex; the female of *Anna* is also brown, but the orange band is broken up on secondaries into separate narrow crescents deeply bent and their limbs prolonged nearly to margin, enclosing fuscous spots; on primaries a very narrow band of lunations similar to secondaries, but less extensive; *Anna* ♀ beneath is a dark uniform yellow-brown, with no orange on primaries and less on secondaries than the male has.

Synopsis of the EROTYLIDÆ of Boreal America.

BY G. R. CROTCH, M. A., CANTAB.

Abdomen with 5 segments; tarsi 5-jointed, fourth generally small, concealed in the third; claws always simple; antennæ clavate, with a loose club of 3—4 joints in most cases; legs unarmed, coxal lines on the metasternum and first ventral segment generally present, but abbreviated; maxillary palpi with the last joint generally securiform; body very rarely pubescent.

Dacne [*Engis*] and *Languria* have been added to this group, and although Lacordaire had not originally done so, yet as he has not placed either of these genera in his third volume he must have intended them for this family.

It will take its place in the Clavicorn series immediately after *Cryptophagidæ*. The family was monographed by Lacordaire (*Monographie des Erotyliens*, 8vo., Paris, 1842), and the American species were revised by Leconte (*Journ. Acad. Phil.* (2), i., p. 71), in 1847, and again (*Proc. Acad.*, vii., p. 158), in 1854; since then several single species have been published, and a revision of the entire family (including *Languria*) is in the press.

Languriides.

Form elongate, parallel, anterior coxal cavities open behind, meta-epimera indistinct.

LANGURIA. Latr. Hist. Nat., iii., p. 209. (Type *Mozardi.*)

Eyes finely granulated, antennæ with a gradual club (5—6-jointed), thorax with the base margined, and generally with a small basal striola; elytra with the epipleura distinct, and a small sub-scutellar abbreviated stria.

A.—*Body beneath more or less pale red.*

L. bicolor. (Fabr.) Suppl. Ent. Syst., p. 50; *thoracica*, Oliv. Ent. vi., 88, t. 1, f. 2; Lec. Pr. Phil. vii., 158, 1; *puncticollis*, Say, J. Phil. (1) iii., 462; Lec. Pr. Phil. vii., 159, 2.—Elongate, pointed behind, red, antennæ, legs, scutellum disc of thorax, elytra, 5th ventral segment and apex of 4th black; head and thorax sparingly and obsoletely punctate, the latter quadrate, rather narrowed in front, sides rounded, base transversely impressed with a well marked striola

on either side; elytra punctate striate, interstices impunctate; underside finely and sparingly punctulate. L. ·33—·47 inch.

Louisiana, Kansas, Illinois, Washington, Pennsylvania. (Leconte, Horn, Ulke.)

L. puncticollis is only a small variety. Leconte (l. c.) has pointed out that Fabricius's name should be restored for this insect, which I have accordingly done. The antennæ have a 6-jointed club, forming the genus *Janessa*, Chevr.

L. Mozardi. Latr. Gen. Crust., iii., 66; Lec. Pr. Phil. vii., 161, 10.—Elongate, parallel, red, antennæ (except the base) and apical half of the femora black, tibiæ and tarsi brown, elytra bluish-green; head and thorax sparingly punctate, the latter elongate, sides rounded in front, basal striolæ short; scutellum red; elytra punctate striate, interstices impunctate; underside sparingly punctate, 2—3 last ventral segment black. L. ·22—·31 inch.

Washington, Pennsylvania, Kansas, Nebraska, Southern States. (Leconte, Horn, Ulke.)

L. discoidea. Lec. Proc. Phil., vii., 160, 8.—Very close to *L. Mozardi*, from which it differs only by its longer thorax which is less rounded at the sides and has a discoidal greenish-black spot. L. ·31 inch.

Georgia. (Leconte.)

L. tædata. Lec. Proc. Phil., vii., 160, 9.—Elongate, parallel, red, elytra greenish, thorax, head and legs tinged with greenish-bronze; head and thorax finely alutaceous, sparingly punctate, the latter rounded at the sides, sinuate before the posterior angles, with the basal striola very faint; elytra punctate striate; underside sparsely punctate. L. ·41 inch.

New York, New Jersey, Washington. (Leconte, Ulke.)

The sides of the metasternum are very coarsely punctured in front, the discoidal mark of the thorax is sometimes well defined (Ulke); the antennæ are elongate, the joints of the club produced within.

L. angustata. (Beauv.) Ins. d'Afr., 125, t. 32, f. 2; *Uhlerii*, Horn, Proc. Ent. Soc. Phil., 1862, p. 188.—Elongate, rather narrowed behind, clear yellowish-red, antennæ and tarsi black; head, elytra and knees blue-black; head and thorax rather obsoletely punctate, the latter with the base strongly margined and with a few deeper punctures; scutellum blue-green, elytra punctate striate; ventral segments sparingly punctulate. L. ·25—·31 inch.

Var. **trifasciata**, Say, J. Phil. (1) iii., 462. — Elytra with a transverse pale discoidal fascia; antennæ with the base pale.

Var. **pulchra**, Lec. Pr. Phil. vii, 159, 6. — Elytra with an ill-defined fascia, antennæ black.

New York, Pennsylvania, New Jersey, Washington, Illinois, Missouri. (Leconte, Horn, Ulke.)

This species is easily known by the abruptly clubbed antennæ; it

varies a good deal in coloring; a specimen in Mr. Ulke's collection has a discoidal black spot on the thorax.

b.—*Body beneath black.*

L. convexicollis. Horn, Trans. Am. Ent. Soc., 1868, p. 140.—Elongate, parallel, black, head between the eyes and thorax red; head sparingly, clypeus deeply punctate; thorax quadrate, convex, narrowed towards the base, sides strongly rounded, base finely margined, striolæ well marked, divergent, with a black line extending across the middle; elytra finely punctate striate, interstices impunctate but transversely rugulose; ventral segment punctulate, especially at the sides. L. ·47 inch.

Owen's Valley, California. (Horn.)

L. læta. Lec. Proc. Phil., vii., 159, 3.—Elongate, parallel, black, head and thorax clear red, obsoletely punctate, the latter rounded at the sides, rather elongate, basal striola short but defined; elytra black, punctate striate, interstices punctulate; ventral segments punctulate. L. ·30—·35 inch.

Kansas River, Colorado, Texas. (Leconte, Horn, Ulke.)

Distinct by the punctate interstices.

L. Lecontei. sp. n.—Elongate, parallel, greenish-black, thorax reddish-yellow with a rather large green discoidal spot; head and thorax sparingly but distinctly punctate, the latter but little convex, base margined, not impressed, the striolæ faint; elytra punctate striate, interstices with a few scattered punctures; underside of the abdomen faintly punctate, metasternum uniformly sparsely and clearly punctate, prosternum rather deeply punctate. L. ·46 inch.

Illinois. (Leconte.)

The antennæ are rather elongate, club loose, last joint elongate.

L. collaris. Lec. Proc. Phil., vii., 159, 4.—Elongate, narrow, brassy-black, thorax red; obsoletely punctured, sub-elongate, base lightly impressed, striolæ almost obsolete; elytra punctate striate, interstices appearing obsoletely but thickly punctulate; underside nearly smooth. L. ·32 inch.

Georgia (Leconte.)

L. gracilis. Newm. Ent. Mag. v., 390; *bicolor*, ‡ Latr. Hist. Nat. xii., 35; *Latreillei*, Lec. Proc. Phil. vii., 160, 7.—Elongate, parallel, greenish-black, head in front, thorax (with a discoidal, vitta greenish) and mesosternum red; thorax sparsely punctate, elongate, parallel, not convex, no basal striolæ; elytra deeply punctate striate, interstices very sparingly punctulate; underside very sparingly, mesosternum closely and roughly punctate. L. ·35—·40 inch.

Var. **inornata**, Randall, Bost. J. N. H. ii., 48.—Thorax entirely greenish-black.

New York, Pennsylvania, Maine, Illinois, Washington. (Leconte, Horn, Ulke.)

V. de Motschulsky (in Schrenck's Reise in Amurlande, Bd. II. Lief. 2. 1860) has described some additional species from the United States, which, however are not easy to identify.

L. apicalis, Mots. l. c. p. 241. [= *L. Mozardi* var. *minor.*]

L. rufiventris, Mots. l. c. p. 242. [= *L. tædata.*]

L. nigriceps, Mots. l. c. p. 242. [= *L. gracilis.*]

L. femoralis, Mots. l. c. p. 242.—Trés voisine de la *bicolor* mais avec la tête bronzée comme les elytres; l'abdomen tout noir et les pattes rousses et foncées seulement á l'extremité des cuisses et su rles tarses; corselet nullement rétréci en arriére, mais allongé, trapéziforme, avec sa partie la plus large aux angles postérieurs, qui sont un peu aigus et saillants, taille d'un tiers plus petite que celle de la *bicolor.* N. Orleans. [sp. nov.]

L. obscura, Mots. l. c. p. 243. [= *L. gracilis* var.]

Dacnides.

Tarsi with the 4th joint clearly visible, maxillary palpi with the last joint cylindrical, or but little dilated; internal lobe of the maxillæ simple.

DACNE, Latr. Prec. d. Car. Gen. 1796. (Type *humeralis.*)

Tarsi distinctly 5-jointed, 4th joint hardly smaller than the preceding; eyes not very finely granulated, thorax margined at the base, elytra with numerous rows of punctures arranged serially.

This genus was established by Latreille in 1796, and called *Engis* by Paykull in 1798, hence I have deemed it necessary to restore the older name.

D. 4-maculata, Say, (Ips.) Bost. Journ., i., p. 169; Am. Ent. Ed. Lec., ii., p. 645.—Parallel, oblong, shining, smooth, fulvous-red, head (except the clypeus), thorax and elytra black, the latter each with two fulvous spots (one humeral and one apical); head and thorax clearly but sparingly punctate; elytra closely multi-seriate punctate, confusedly punctate near the scutellum; underside pitchy varied with red, clearly and closely punctate. L. ·12 inch.

Pennsylvania, Illinois. (Leconte, Horn, Ulke.)

D. californica, Horn, (Engis) Trans. Am. Ent. Soc., 1870, p. 97.—Oblong, finely clothed with a short erect pubescence, entirely of a yellowish-red, elytra dark brown with a humeral spot fulvous; head and thorax more closely punctate; elytra as in *D. 4-maculata;* ventral segments closely, metasternum deeply and more sparingly punctate. L. ·10—·14 inch.

California. (Horn, Leconte, Ulke.)

MEGALODACNE, Crotch.

Dacne, ‡ Lac. Erot., p. 63. (Type *fasciata.*)

Tarsi with the 4th joint much smaller, but still distinct; last joint of the palpi sub-cylindrical or slightly dilated, mentum triangular, eyes rather coarsely granulated.

M. fasciata. Fabr. (Ips.) Ent. Syst. ii., p. 511.—Black, glabrous, shining, oblong ovate; head and thorax very finely and obsoletely punctulate, the latter with the sides straight, strongly margined, base with a punctured fovea on either side; elytra very finely seriate punctate, interstices finely and sparsely punctulate; underside smooth, sides of prosternum and first ventral segment deeply punctate; elytra with a humeral ring prolonged inwards towards the suture and a sub-apical fascia (interrupted at the suture) black. L. ·50—·60 inch.

Middle and Southern States. (Leconte, Horn, Ulke.)

M. heros. Say, (Engis) Journ. Acad. iii., p. 196; Lac. Erot., p. 67.—Very similar to *M. fasciata*, but considerably larger, elytra entirely impunctate, underside finely and rather densely punctate. L. ·64—·80 inch.

♂ last ventral segment compresso-carinate at the apex.

Southern and Western States (abundant), Middle States (rare). (Leconte, Horn, Ulke.)

M. Ulkei, sp. n.—Elongate oval, rather narrowed behind, black, shining, elytra red-brown, each with four black spots (one humeral, two transverse at one-third, one larger before the apex); head and thorax very coarsely and sparsely punctate, the latter with a smooth space before the scutellum, sides slightly rounded, evidently punctate striate, interstices very sparingly punctulate; underside with the sides of the prosternum, metasternum and first ventral segment coarsely punctate; the prosternum forms in the middle a broad elevated triangle. L. ·20 inch.

Kentucky. (Ulke.)

Triplacides.

Maxillary palpi with the last joint dilated, maxillæ with the internal lobe unarmed, tarsi with the 4th joint very minute.

ISCHYRUS, Lac. Erot., p. 89. (Type *4-punctatus*, Oliv.)

Eyes large, coarsely granulated, mentum triangular, antennæ with a 3-jointed club.

I. 4-punctatus. Oliv. (Erotylus) Enc. Meth. Ins. vi., p. 437, 34.—Ovate, sub-elongate, convex, black; thorax coarsely and rather sparsely punctate, fulvous, with four black dots arranged transversely across the middle, base black in the centre, sinuate and more coarsely punctate on either side: elytra punctate striate, interstices alutaceous, finely and obsoletely punctulate, with a basal and median fascia and the apex, black; the basal fascia is interrupted, leaving a humeral vitta, the medial is very deeply dentate, and the apical mark is prolonged slightly on to the disc of each elytron; underside coarsely punctate, varied with red. L. ·30 inch.

Georgia, South Carolina, Texas, Missouri, Illinois. (Leconte, Horn, Ulke.)

The Mexican race of this species has the head pale.

I. nigrans, sp. n.—Ovate, shining, convex, pitchy-brown, legs and antennæ pale; head and thorax uniformly not very strongly punctate, the latter slightly sinuate on either side of the base, the sinuation faintly margined; elytra punctate striate, interstices sparsely and very finely punctulate; ventral segments coarsely punctate. L. ·18 inch.

Florida. (Ulke.)

I. extricatus, sp. n.—Rather broadly ovate, shining, clear yellowish-red, elytra dark brown; head and thorax rather closely and evidently punctate, the base of the latter slightly sinuate and margined on either side; scutellum red; elytra punctate striate, the punctures numerous, interstices finely and sparingly punctulate; ventral segments and metasternum rather coarsely punctate. L. ·16 inch.

Middle States. (Leconte.)

MYCOTRETUS, (Chev.) Lac. Erot., p. 132.

Eyes finely granulated, maxillary palpi more or less dilated, mentum pentagonal. The North American species I refer to this genus, all have the antennal club abruptly 3-jointed, but cannot constitute more than a section of the original genus on that account. Those species had been confounded with *Cyrtotriplax* [*Tritoma*] by Lacordaire and subsequent writers, but certainly belong here by the structure of the mentum; they differ moreover by the absence of a scutellar stria.

M. sanguinipennis, (Say) J. Phil. (1) iv., 89; Lec. J. Phil. (2) i., 71; Pr. Phil. vii., 162, 7.—Broadly ovate, shining, black; elytra, palpi, last ventral segment and tarsi red; head rather sparingly punctate; thorax broad, distinctly but sparingly punctate, sinuate on either side the base (the sinuation with very coarse deep punctures); scutellum red, impunctate; elytra red, deeply punctate striæ, (the punctures closely placed), interstices distinctly punctate; ventral segments punctulate, meta-epipleuræ with a few coarse punctures. L. ·16—·18 inch.

Georgia, Ohio, Illinois, New York, Kentucky, Washington, Pennsylvania. (Leconte, Horn, Ulke.)

M. pulchra, (Say) J. Phil. (1) v., 301; Lec. Pr. Phil. vii., 162, 8; *cincta,* (Lac.) Erot., 223.—Ovate, black, elytra red, apical third obliquely black; thorax sparingly and deeply punctured, base sinuate, with coarser punctures; scutellum black, faintly punctulate; elytra deeply punctate striate, interstices sparsely and very finely punctulate; sides of metasternum and epipleuræ coarsely punctate. L. ·14—·16 inch.

Var. **dimidiata,** (Lac.) Erot., 224; *basale,* (Mels.) Pr. Phil. iii., 175; *pulchra,* ‡ Lec. J. Phil. (2) i., 71.

Nova Scotia, Pennsylvania, Washington, Georgia. (Leconte, Ulke.)

In this variety the black color of the elytra is divided off by an angulated line, sloping up a little from the suture and then down to the margin behind the middle.

M. dissimulator, sp. n.—Subovate, red, elytra, sternum and two thoracic spots (one on the anterior, one on the posterior margin) black; thorax rather closely and clearly punctate, base margined, faintly sinuate, with a few deeper punctures; scutellum black with a few scattered punctures; elytra faintly punctate striate, interstices distinctly punctate especially on the disc; sides of metasternum sparingly and coarsely punctate, ventral segments punctate. L. ·18 inch.

Illinois. (Ulke.)

CYRTOTRIPLAX, Crotch.

Tritoma, ‡ Fab. nec. Geoff. (Type *humeralis.*)

Differs from *Triplax* by its short ovate form, the antennæ always with an abrupt 3-jointed club, the maxillary palpi less broadly dilated, the thorax not margined at the base, the body hardly punctate beneath.

Tritoma brunnea (Lac. Erot., p. 222, 3) is an immature *C. angulata; Trit. livida* (Lac. Erot., p. 227, 12) is probably *C. affinis,* and is also evidently immature.

a.—*Elytra more or less red.*

C. humeralis, (Fab.) Syst. El. ii., p. 571; *tæniata,* (Lec.) J. Phil. (2) i., 71: Pr. Phil. vii., 162, 12; *tæniata,* (Lec.).—Shortly ovate, black, antennæ, legs, a subquadrate humeral spot, and the apex of the fifth ventral segment reddish-yellow; head and thorax clearly and pretty closely punctured; scutellum large, smooth, or with a few very fine punctures at the base; elytra finely striate-punctate, interstices with a few scarcely visible punctures; underside with the meta-epipleuræ deeply punctate. L. ·10—·16 inch.

Var. **ruficeps,** (Lec.) J. Phil. (2) i., 71; Pr. Phil. vii., 162, 11.

This differs only by having the head of a clear red color.

Var. **vittata,** (Lec.) J. Phil. (2) i., 71; Pr. Phil. vii., 162, 10.

The humeral spot is prolonged to the apex, leaving only the suture black.

Var. **aulica,** (Horn) Trans. Ent. Soc., 1871, p. 343.

Pennsylvania, Ohio, Illinois, Iowa, Missouri. (Leconte, Horn, Ulke.)

The head, thorax and apical ventral segment are entirely reddish-yellow.

C. biguttata, (Say) J. Phil. (1) iv., 89; (Lec.) J. Phil. (2) i., 71; *basale,* (Lac.) Erot., 225.—Very closely allied to *C. humeralis,* but less broadly oval, entirely pale beneath, elytra more deeply striate, and the interstices slightly more visibly punctulate, especially at the base. L. ·12—·18 inch.

Pennsylvania, Georgia. (Leconte, Horn, Ulke.)

C. mimetica, sp. n.—Rather broadly ovate, head, thorax and club of antennæ black, elytra red with the external margin black; head and thorax clearly and uniformly punctate, scutellum red, punctulate; elytra finely stri-

ate punctate, interstices rather thickly but finely punctulate; the external dark margin does not quite reach the humeral angle; underside black, legs, sides of sternum and abdomen red. L. ·18 inch.

Illinois, Ohio, Georgia, Washington. (Leconte, Horn.)

This bears an embarrassing resemblance to *Myc. sanguinipennis* from which the generic characters will, however readily separate it.

b.—*Elytra entirely black.*

C. erythrocephala. (Lac.) Erot., 226; (Lec.) J. Phil. (2) i., 71; Pr. Phil. vii., 162, 15.—Very close to *C. humeralis*, from which it only differs by the red head, unicolorous elytra and rather more faintly punctate thorax. L. ·14—·16 inch.

Georgia, Missouri. (Leconte, Horn.)

C. atriventris. (Lec.) J. Phil. (2) i., 71; Pr. Phil. vii., 162, 14.—Again very near *C. humeralis*, and not perceptibly differing except in color; the head, thorax and legs are here of a clear red color, the rest black. L. ·16 inch.

Georgia, Texas, Missouri. (Leconte, Horn, Ulke.)

C. angulata. (Say) J. Phil. (1) v.. 300; (Lec.) J. Phil. (2) i., 71; Pr. Phil. vii., 162, 16; *flavipes*, (Lac.) Erot., 226.—Shortly ovate, black, head pitchy-red, legs reddish-yellow, tibiæ broadly triangularly dilated; head and thorax rather closely punctate, elytra striate-punctate, interstices finely and sparingly punctate; underside finely punctulate. L. ·12—·16 inch.

Washington, New York, Pennsylvania. (Leconte, Horn, Ulke.)

C. unicolor. (Say) J. Phil. (1) iv., 300; (Lec.) J. Phil. (2) i., 71; Pr. Phil. vii., 162, 18.—Entirely unicolorous black, not very shining; head closely punctate, thorax very coarsely and deeply punctate, more closely so at the sides; elytra punctate striate, interstices alutaceous, impunctate; underside finely punctate; tibiæ broadly dilated. L. ·16—·20 inch.

Ohio, Tennessee, Washington, Maryland, Virginia, Louisiana, Illinois, Pennsylvania. (Leconte, Horn, Ulke.)

C. affinis. (Lac.) Erot., 224; (Lec.) J. Phil. (2) i., 71; Pr. Phil. vii., 162, 14.—Ovate, entirely clear red, elytra alone black; head and thorax rather sparingly but clearly punctate; elytra deeply punctate striate, interstices sparsely and finely punctulate; underside almost smooth. L. ·12—·16 inch.

Georgia to Texas. (Leconte, Ulke.)

This resembles a small *Trilax* in form and coloration, but could only be compared with *T. thoracica* from which the fine interstitial punctuation and smooth undersurface at once separate it.

TRIPLAX, Herbst., 1793. (Type *russica*.)

Antennæ with the club 3–4-jointed, maxillary palpi with the last joint broadly dilated, mentum triangular; eyes finely granulated, thorax margined at the base; body coarsely punctate beneath.

a.—*Body beneath red.*

T. frontalis, Horn, Proc. Ent. Soc., 1862, p., 188.—Oblong, red, front of head, antennæ (club 4-jointed) and elytra black; head sparsely but deeply punctate, labrum and vertex red; thorax transverse, clearly punctured, base margined in front of the scutellum, which is red; elytra rather deeply punctate striate, interstices sparsely and very finely punctulate; underside coarsely and evidently punctate. L. ·22 inch.

Texas. (Horn, Ulke.)

T. festiva, Lec. Erot., p. 208; Lec. J. Phil. (2) i., 71; Proc. Phil. vii., 161, 1.—Exactly like *T. frontalis,* but the elytra have a broad common central yellowish-red fascia, and the punctuation of the interstices is extremely sparse and hardly visible. L. ·18—·20 inch.

Southern States. (Leconte, Horn, Ulke.)

T. macra, Lec. Proc. Phil. vii., 161, 2.—Sub-elongate, red, antennæ (club 3-jointed) and elytra black; head and thorax distinctly punctate, the latter finely margined at base; elytra punctate striate, interstices very sparsely and obsoletely punctulate; underside evidently and rather coarsely punctate. L. ·22 inch.

Maine, Illinois. (Leconte, Ulke.)

Differs from either of the preceding by its red head and 3-jointed club to the antennæ.

T. thoracica, Say, J. Phil. (1) iv., 89; Lec. J. Phil. (2) i., 71; *melanoptera,* Lec. Erot., 215.—Oblong oval, red, antennæ (with the base red) and elytra black; antennal club 3-jointed, head and thorax evidently and rather closely punctate, the latter with the sides distinctly rounded; scutellum brownish-red; elytra punctate striate, interstices very evidently (though sparsely) punctate; underside clearly punctate. L. ·18—·20 inch.

Lake Superior, Hudson's Bay, Ohio, Illinois, Virginia, Washington, Georgia, Texas. (Leconte, Horn, Ulke.)

This is very closely allied to, if not identical with, the European *T. scutellaris* (*bicolor* ‡ Gyll).

b.—*Body black underneath.*

T. antica, Lec. Proc. Acad., 1861, p. 358.—Oblong, sub-parallel, black, head (with the front piceous), antennæ at the base, legs and the base of the elytra ochraceous; antennal club 3-jointed; head rather thickly, not coarsely, punctate; thorax, with the sides almost straight, coarsely and deeply but sparingly punctate; scutellum black, finely and closely punctulate; elytra punctate striate, interstices with a few scattered hardly visible punctures; underside surface punctate. L. ·16 inch.

Oregon. (Leconte, Ulke.)

This is the only species with a black head and thorax.

T. californica, Lec. Pr. Phil. vii., 161, 4.—Very close to *T. antica*, from which it differs in having the head and thorax red, but agrees in punctuation and the straight sides to the thorax. L. ·16—·18 inch.

California. (Leconte, Horn, Ulke.)

T. flavicollis, Lac. Erot., 218; Lec. J. Phil. (2) i., Pr. Phil. vii., 162, 6.—Oblong ovate, red, antennal club, elytra and body beneath black: head and thorax clearly and rather closely punctate, the latter with the sides decidedly rounded; elytra rather finely punctate striate, interstices very sparsely and obsoletely punctate; underside rather densely punctate. L. ·12—·16 inch.

Pennsylvania, New York, Washington, Illinois, Louisiana. (Leconte, Horn, Ulke.)

T. confinis differs only in the relative shape of the thorax, which is I think sexual, at least a similar difference prevails very generally in the family.

Erotylides.

Tarsi with the 4th joint very minute, maxillæ with the internal lobe with two spines; form generally more ovate and less cylindrical.

CYPHEROTYLUS, Crotch, g. n. (Type *gibbosus.*)

Head produced in front into a rostrum which is narrowed for the insertion of the antennæ; elytra ochreous with irregular deep black punctures; thorax unevenly impressed, base margined; anterior femora globose, and the 1st ventral segment with a pilose dot in the males.

C. Boisduvali, (Chev.) Col. Mex., 2, 4; (Lac.) Erot., 466, 54.—Obovate, black, opaque, elytra ochreous, covered with numerous deeply impressed black punctures, often confluent, and with a black triangular spot on the external margin about the middle; underside sparingly punctulate. L. ·64 inch.

Var. **californicus,** (Lac.) Erot., p. 467, 55.

Santa Fé, New Mexico, Colorado. (Leconte, Horn, Ulke.) Also found in Mexico.

The elytral points are smaller and more numerous.

Synopsis of the ENDOMYCHIDÆ of the United States.

BY G. R. CROTCH, M. A., CANTAB.

Tarsi subtetramerous or tetramerous, head narrowed behind the eyes, clypeus distinct, antennæ inserted on the front, generally elongate; maxillary palpi with the last joint subcylindrical; thorax trisulcate at the base, meso-epimera rhomboidal, meta-episterna in part obliquely truncate; anterior coxæ globose, cavities open, femora not grooved to receive the tibiæ, claws simple; larvæ fungivorous.

The species resemble *Coccinellidæ* in their tarsal structure, but are at once known by their cylindrical palpi and long antennæ. The family should follow *Mycetophagidæ* in systematic position.

Of the 9 genera composing the family 5 are common to Europe, and one species, *Mycetæa hirta*, is identical. Two other species, *Mycetina perpulchra* and *Endomychus biguttatus*, are also closely allied to these European representatives. Two genera, *Phymaphora* and *Rhanis*, are peculiar to North America, *Epipocus* extends southward to New Granada, *Stenotarsus* is found everywhere in the tropics. The group has been carefully monographed by Gerstaecker in 1858.

A. Tarsi sub-tetramerous, third joint very minute..... .....ENDOMYCHIDES.
B. Ligula transverse, emarginate or truncate.....DAPSINI.
C. Anterior coxæ contiguous..... .....**Lycoperdina.**
C 2. Prosternum extending behind the coxæ.
D. Thorax with no lateral impressed line.
E. Thorax with a deep transverse impression at the base...**Mycetina.**
E 2. Thorax simple.....**Epipocus.**
D 2. Thorax with an impressed lateral line.....**Stenotarsus.**
B 2. Ligula oblong, apex rounded..... .....ENDOMYCHINI.
C. Maxillary palpi with the last joint broad.....**Endomychus.**
A 2. Tarsi distinctly tetramerous.... ..... MYCETÆIDES.
B. Anterior coxæ contiguous.....**Rhanis.**
B 2. Coxæ separated by the prosternum.
C. Thorax narrow, sub-quadrate; antennæ dilated in ♂...**Phymaphora.**
C 2. Thorax transverse, with a lateral impressed line
D 1. Antennæ 11-jointed, form oval.....**Mycetæa.**
D 2. Antennæ 10-jointed, form globose .....**Alexia.**

LYCOPERDINA, Latr. (1807). (Type *bovistæ*.)

L. ferruginea, Lec. Ann. Lyc. i., p. 172; Proc. Phil. vi., p. 360, 1; Gerst. Endom., p. 210, 1.—Pitchy-black, finely punctulate, antennæ, head, legs, mar-

gins of the thorax and elytra brownish-red; scutellum broad, semicircular. ♂ anterior tibiæ dentate within. L. ·19—·21 inch.

Middle and Southern States.

MYCETINA, Muls. (1846). (Type *cruciata.*)

M. perpulchra, (Newm.) Ent. Mag. v., 390; Lec. Proc. Phil. vi., 359, 1; Gerst. End., p. 232, 2.—Glabrous, shining, black, thorax red with a discoidal vitta black; elytra black, each with a red spot; antennal club with the first joint oblong, mesosternum broader than long, pentagonal; ♂ anterior and posterior tibiæ angulate within. L. ·16 inch.

Middle, Southern and Western States.

M. Hornii, sp. nov.—Sub-ovate, ferruginous-red, thorax with the disc infuscate, sparingly punctate, the longitudinal impressions deep, the transverse impression very faint; elytra black, clearly and evenly punctate, each with a bright fulvous red spot, one humeral triangular, one sub-apical rounded. L. ·16 inch.

California, Oregon. Allied to *M. perpulchra,* but differing by the triangular humeral spot.

M. testacea, Lec. Proc. Phil. vi., 359, 2; Gerst. Endom., p. 234, 4.—Obscure ferruginous, clothed with yellow hairs, shining; head and sides of thorax yellowish, club of antennæ infuscate, antennal club loosely jointed, mesosternum quadrangular. L. ·15 inch.

Middle and Southern States.

M. vittata, (Fab.) Mant. i., 44, 4; Gerst. End., 237, 6; *lineatus,* (Oliv.) Ent. vi., p. 1072; (Lec.) Proc. Phil. vi., 358, 5.—Glabrous, shining, bright red, antennæ pitchy, last joint ferruginous; elytra with a common sutural vitta and each with a lateral vitta black. L. ·25 inch.

Middle and Southern States.

M. læta, (Lec.) Proc. Phil. vi., 358, 4; Gerst. Endom. 239, 7.—Elongate, ferruginous, shining, elytra finely punctate, bluish-black, base apex and epipleuræ yellow; femora clavate, antennæ black. L. ·32.

San Francisco, Oregon.

M. morosa, Lec. Proc. Phil., 1859, p. 82.—Elongate, pitchy-black, shining, thorax scarcely punctulate, a little shorter than broad, disc concave, unequal, basal impression very deep, elytra rather broader than the thorax, elongate oval, visibly punctate. L. ·27 inch.

Fort Tejon, California.

M. pallida, Horn, Trans. Am. Ent. Soc., i., 96.—Elongate, pale rufo-testaceous, moderately shining; thorax sparsely and very finely punctured, longitudinal and basal impressions well marked; elytra less shining, very finely but sparsely punctate and with minute hairs; prosternum narrower, depressed. L. ·26 inch.

Colorado. Closely allied to *M. morosa,* from which it differs only by the color and punctuation.

M. limbata, Horn, Trans. Am. Ent. Soc., i., 96.—Piceous-black, shining; finely and sparsely punctate, very sparsely pubescent, thorax not deeply impressed; elytra with the external margin and a central fascia not reaching the suture testaceous; antennæ, palpi and legs ferruginous; body beneath black, coarsely punctate. L. ·18 inch.

California.

EPIPOCUS, Germ. (Type *tibialis.*)

E. cinctus, Lec. Proc. Phil. vi., 358, 1; Gerst. Endom., 246, 4.—Ferruginous, thorax with two discoidal marks, and two lateral dots, black, sides closely, disc vaguely and deeply punctate, with the disc deep black. ♂ anterior tibiæ angulate within. L. ·4 inch.

Texas.

E. mutilatus, Gerst. Endom., 249, 7.—"Ferrugineo-transpese, abdomine nigro-maculato, elytris apice recte truncatis, confertim punctatis, thorace disco punctisque duobus lateralibus nigris, medio fortins, lateribus crebrius punctato. L. 4 lin."

Var. Abdomine piceo, basi apiceque ferrugineo.

Texas. (Dohrn.) Mexico.

E. punctatus, Lec. Proc. Phil. vi., 358, 2; Gerst. Endom., 252, 9.—Ferruginous, elytra with the disc black, apex sub-truncate, coarsely and closely punctate; thorax with two rounded spots on the disc. L. ·25 inch.

Georgia.

E. bivittatus, Gerst. Endom., 253, 10.—Rufo-ferruginous, antennæ with joints 5—10 black; thorax with two spots, elytra with a vitta narrowed in front, black; elytra closely punctate, apex sub-truncate. L. 2¾ inch.

Tennessee. (Dohrn.) South Carolina.

E. discoidalis, Lec. Proc. Phil., p. 358, 3; Gerst. Endom., 254, 11.—Ferruginous, thorax obsoletely spotted, elytra coarsely punctate, disc broadly black, antennæ thin with the third joint elongate, equal to the fourth and fifth. L. ·25 inch.

Texas.

E. unicolor, Horn, Trans. Am. Ent. Soc., i., 96.—Rufo-ferruginous, sparsely clothed with golden hairs, thorax with the disc coarsely and rather sparsely, sides more closely punctate; elytra obliquely truncate, equally not coarsely punctate. ♂ anterior tibiæ with a minute spur. L. ·22—·28 inch.

Colorado, Camp Grant, Arizona.

STENOTARSUS, Perty, (1831). (Type *brevicollis.*)

S. hispidus, (Herbst.) Käfer. viii., 374, 16; (Lec.) Proc. Phil. vi., 359, 3; Gerst. End., p. 326, 24.—Sub-parallel, rufo-ferruginous, pilose, antennæ with the last five joints and the disc of the elytra black; thorax transverse. L. ·15—·18 inch.

Var. Suture black.

ENDOMYCHUS, (Hellwig) 1795. (Type *coccineus.*)

E. biguttatus, Say, J. Acad. Phil. iv., 96; Lec. Proc. Phil. vi., 359, 1; Gerst. End., 376, 4.—Bright red, head, antennæ, thorax, scutellum, elytra with two spots and legs black. L. ·16 inch.

Middle, Southern and Western States.

Differs from *E. coccineus* by the basal impression which is close to the hind margin.

RHANIS, Lec. (1854). (Type *unicolor.*)

Rh. unicolor, (Ziegl.) Proc. Phil. ii., 272, 2; Lec. Proc. Phil. vi., 360, 1; Gerst. End., 394, 1.—Narrow, sub-parallel, almost glabrous, shining, red, elytra black, shoulders and apex red, rather finely punctate. L. ·14 inch.

Middle and Southern States.

PHYMAPHORA, Newm. (1837). (Type *pulchella.*)

Ph. pulchella, Newm. Ent. Mag. v., 389; Lec. Proc. Phil., 360, 1; Gerst, End., 397, 1.—Oblong, red, glabrous, shining, thorax with a discoidal spot. elytra with two fasciæ (one before, one behind the middle) black. L. ·15 inch.

Middle and Southern States, Canada, California.

MYCETÆA, Stephens, (1831). (Type *hirta.*)

M. hirta, (Msh.) Ent. Brit.—Oval, pointed behind, uniform yellow-testaceous, deeply serrate punctate, clothed with erect pubescence arranged in rows. L. ·5—·6 inch.

Baltimore, New York.

ALEXIA, Steph. Man., p. 99, 132. (Type *polifera.*)

This genus is well described and figured by Duval (t. ii., p. 225, pl. 55, f. 275), except that the antennæ are figured as 9-jointed on one side and 10-jointed on the other. I quite agree with him that it must be associated with *Mycetæa*, but *Lithophilus* is a decided Coccinellid in all respects.

Convex, pubescent, punctate, thorax deeply impressed on either side; labrum prominent, truncate; antennæ 10-jointed (the 8th being lost), club abruptly 3-jointed, last joint largest; prosternum narrow, separating the coxæ bisulcate; tarsi distinctly 5-jointed, the last longer than the other three together.

A. Ulkei, sp. n.—Sub-hemispherical, globose, shining, coarsely punctate, pubescent, pale reddish-brown, elytra black, margins and suture narrowly paler, antennæ with the club black; thorax obsoletely punctulate, disc brown, deeply impressed on either side at the base, which is margined. L. ·7 inch.

Washington. (Ulke.)

A. minor, sp. n.—Very near to *A. Ulkei,* but uniformly testaceous, smaller and less globose, elytra less reflexed at the margin. L. ·6 inch.

Washington. (Ulke.) Illinois, Georgia, Louisiana.

This may be the insect indicated by Motschulsky, as *Hygrotophila testacea* from Georgia.

As a supplement to the preceding paper I wish to record the occurance of the genus *Myrmecoxenus*, Chev., in the United States. It resembles *Mycetæa* in some respects, having 4-jointed tarsi, but the 1st joint is longer than the second; the anterior coxal cavities are closed, the antennæ 11-jointed with a 5-jointed club, the 2d joint is not larger than third. Epipleuræ extending to the apex of elytra, pygidium exposed. The whole facies is that of a *Corticaria*.

M. latridioides, sp. n.—Elongate, reddish-brown, finely pubescent, thorax quadrate, sides crenulate, closely punctulate; elytra with the sides rounded, more visibly punctulate than the thorax; prosternum roughly punctate; ventral segments black, punctulate. L. ·7 inch.

This genus ought to be placed in the *Mycetophagidæ;* it is found in ants nests and about hot-beds in Europe.

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Revision of the COCCINELLIDÆ of the United States.

BY G. R. CROTCH, M. A., CANTAB.

Anterior coxal cavities closed.
- Antennæ as long as head and thorax, surface glabrous.....Coccinellides.
- Antennæ very short, hardly longer than the front.
  - Genæ produced, broadly margining the eyes, glabrous.....Chilocorides.
  - Abdomen with seven segments in the ♂, glabrous.....Hyperaspides.
  - Pubescent, epipleura of elytra not foveolate.....Scymnides.

Anterior coxal cavities open, antennæ longer than thorax.....Coccidulides.

Coccinellides.

A. Thorax sub-transverse, base sinuate.
- Mesocoxal line wanting.
  - Claws bifid.
    - Thorax margined at base.....**Hippodamia.**
    - Thorax partially margined.....**Eriopis.**
    - Thorax not margined.....**Adonia.**
  - Claws dentate, thorax margined.
    - Antennæ simple.....**Megilla.**
    - Antennæ with third joint dilated.....**Ceratomegilla.**
- Mesocoxal line distinct, claws simple.....**Anisosticta.**

B. Thorax convex, base rounded, not margined.
Elytral epipleuræ acuminate before apex; antennæ shorter than thorax.
Metacoxal line angulate externally, posterior tibial spurs distinct.
Coccinella.
Metacoxal line semicircular..... .....**Adalia.**
Metacoxal line incomplete externally.
Metasternum margined in front.
Epipleuræ of elytra concave..... .....**Cycloneda.**
Epipleuræ flat..... ....**Harmonia.**
Metasternum not margined..... .....**Anisocalvia.**
Elytral epipleuræ continuous to apex, antennæ elongate.
Last joint of antennæ truncate.
Prosternum compressed, metasternum simple.....**Anatis.**
Metasternum margined in front..... .....**Mysia.**
Last joint of antennæ rounded..... .....**Psyllobora.**

Doubtful Species.

COCCINELLA MENETRIESI, Muls.—Mulsant (Spec. p. 104) describes this species from Northern California and Russian Asia. It is not rare in parts of Siberia, Mongolia, Persia and Egypt, and is merely a geographical form of the Western European *C. 11-punctata;* its occurrence in California is to me extremely doubtful.

THALASSA MONTEZUMÆ, Muls.—Mulsant (Spec. p. 512) records this species from New Orleans, as having been collected by Pilate. It is not rare in Mexico, but further evidence is required before it can be regarded as North American.

MEGILLA, Muls. Spec., p. 24. (Type *maculata.*)

Thorax subquadrate, sinuate at base which is produced into a rounded lobe and distinctly margined, meso-coxal line none, claws dentate at the base, posterior tibial spurs distinct.

M. maculata, (DeGeer), Mém. v., 392, 1, t. 16, f. 22; Muls. Spec., p. 28, 4; *fascilabris,* (Muls.) Mon., p. 22, 2.—Oval, black, alutaceous, thorax and elytra ochreous-yellow, spotted with black, punctulate; the thorax has an obtriangular black spot on either side the median line; scutellum black, elytra with two common spots (one scutellar, one at three-fourths), and four arranged longitudinally; one on the callus, one medial larger, one at three-fourths and one sub-apical. L. ·20—·22 inch.

United States, Central and South America.

M. vittigera, (Mannh.) Bull. Mosc. xvi., p. 312, 297; (Muls.) Spec., p. 33, 2.—Ovate, black, alutaceous, thorax as in *M. maculata,* elytra with the suture and a dorsal vitta black, both are attenuate towards the apex, which they do not reach. L. ·20 inch.

California, Kansas, Mexico.

CERATOMEGILLA, g. n.

Shape and form of *Hippodamia*, claws dentate at base, coxal lines obsolete, thorax sinuate and margined at base; antennæ with the third joint longer than the second, broadly dilated at apex, with the inner apical angle ciliate.

The structure of the antennæ is unique in the family.

C. Ulkei, sp. n.—Oval, sub-opaque, antennæ, tarsi and palpi ochreous; head with a white spot in front of each eye, thorax with the sides bordered with ochreous, anterior angles broadly ochreous, and a very minute line in the middle of the anterior margin also ochreous; elytra rather closely punctate, a triangular spot on the base, the external margin irregularly, and an elongate common sutural spot near the apex fulvous. L. ·22 inch.

Hudson's Bay. (Ulke.) Probably the markings are suffused.

ERIOPIS, Muls. (Type *connexa.*)

Meso-coxal line absent, claws bifid, thorax quadrangular, base sinuate, margined at the angles but not in front of the scutellum.

E. connexa, (Germ.) Ins. Sp. Nov., p. 621, 889.—Oblong, black, extremely finely and obsoletely, head more visibly, punctate; thorax with the sides, and a spot on the front and hind margins yellow; elytra with the margin, base and two dorsal spots yellow; the marginal line is dilated in five places, one basal, one sub-humeral, one medial, one at three-fourths and one sub-apical. L. ·22 inch.

Texas, California (Mulsant) Vancouver (British Museum). This species is spread throughout South America, but its occurrence in the United States is exceptional.

HIPPODAMIA, (Chev.) Dej. Cat. (Type 13-*punctata.*)

Thorax sub-transverse, not margined at the base, claws bifid, posterior tibial spurs distinct, meso-coxal none, meta-coxal irregular and obsolete.

The species of this genus are very variable and difficult to define satisfactorily. Two occur in North Europe, one of which is also found in North America and extends down to the West Indies.

A. Metepimera white.
  a. Tibiæ black.
    x. Thoracic border sinuate and interrupted; discal marks obsolete or none ..... **5-signata. ambigua. Lecontei.**
    xx. Thoracic border narrow, uniform, disc with two white dashes ..... **glacialis. convergens. spuria. sinuata.**

b. Tibiæ pale.
x. Thorax with broadly white sides.....**13-punctata.**
xx. Thorax with a basal spot white.....**parenthesis.**
B. Metepimera black.
a. Sutural margin uniform.....**falcigera.**
b. Sutural margin dilated before the middle.....**americana.**

[The following nine North American species are very closely allied, and have a similar design, though modified in each form or species; the punctuation also appears to vary; typically the elytra have each six spots arranged in two triangles, the basal one with the apex on the callus, the other reversed subapical; the thorax is margined with white in front and on the sides and there are two converging white marks on the disc.]

H. 5-signata. (Kirby) Faun. Bor. Am., p. 230, 512, pl. 7, f. 7; Muls. Spec., p. 15, 5; *extensa*, Muls. Spec., p. 17, 6; *Mulsanti*, Lec. Proc. Phil. vi., 131, 2; *leporina*, Muls. Op. vii., 135.—Punctuation clear, distinct, close, head with a white medial spot on the front, thorax with the anterior angles triangularly white; external spot of the basal triangle absent, the other two forming a common concave fascia, the two upper spots of the apical triangle also connected together. L. ·25—·27 inch.

Hudson's Bay, Lake Superior, New York, Kansas.

The white spot at the anterior angles of the thorax is carried more or less backwards to the posterior angles and the spots on the disc are exceptionally visible; the apical triangle has all three spots disconnected, or the apical one absent, the basal fascia is very rarely broken up into two spots.

H. ambigua. Lec. Proc. Phil. vi., 131, 3; *punctulata*, Lec. l. c., 131, 4.

Similar to *H. 5-signata* by its head and thorax, the frontal spot shows some tendency to be prolonged to the eyes, the discal marks are more often present on the thorax, the elytra are alutaceous and obsoletely punctate, generally spotless, or with the spots very small, and distinct as in *convergens*.

California, Oregon.

H. Lecontei. Muls. Spec., p. 1010.—About the size and form of *H. glacialis*' from which it differs by the distinct punctuation, which is nearly as clear as in *H. 5-signata*. The anterior spots are entirely absent (or all three present but small), the posterior pair generally united, the apical one sometimes absent; thorax with the lateral border sinuate, the anterior angles triangularly white, a median triangle on the anterior margin, and two obsolete discal spots. L. ·28—·30 inch.

Santa Fé, New Mexico. (Leconte.)

Var. **moesta**, Lec. Proc. Phil. vii., 16.—Elytra entirely black, with a small basal dot near the scutellum, and a triangular marginal sub-apical spot, yellow.

Oregon. (Leconte.) Vancouver. (Crotch.)

H. glacialis. (Fabr.) Syst. Ent., p. 80, 12; Muls. Spec., p. 187.—Larger and broader than the other species, anterior spots wanting, or only the one on the callus present, posterior pair well marked, generally united, apical one large; punctuation obsolete, elytra alutaceous; thorax with a uniform narrow border, discal marks well developed, frontal spot not prolonged laterally; abdomen with the sides spotted with red. L. ·27—·31 inch.

Pennsylvania, Kansas, Missouri.

H. 15-maculata. Muls. Spec., p. 20, 8.—Rather large, punctuation distinct, close, frontal spot prolonged to the eyes, border of thorax uniform, narrow, emitting a distinct dent in the middle in part, discal marks large; elytra with the six spots distinct, the inner basal are generally largely developed. L. ·25—·28 inch.

Missouri.

H. convergens. Guér. Icon., p. 321; Muls. Spec., p. 22, 9.—Smaller than the preceding, head with the frontal spot connected laterally with the eyes, thorax with a narrow uniform border and the two discal marks distinct; elytra alutaceous, punctuation faintly impressed, spots small punctiform, often wanting, never united. L. ·18—·20 inch.

Var. **obsoleta**, Lec. MSS.—Punctuation of elytra entirely obsolete.

Middle States, Missouri, Kansas, Texas, California, Mexico, Louisiana, Florida.

H. spuria, Lec. Proc. Phil. xiii., p. 358, 10.—Black, clearly but finely punctulate; head with the frontal spot produced laterally, thorax with the discal spots linear but well marked, border uniform and complete; elytra yellowish-white, with the suture narrowly black, a spot on the callus, one near the suture beyond the middle, and a curved lunule towards the apex, black. L. ·20 inch.

Var.—Elytris unicoloribus pallidis.

Oregon. The elytra are like those of *H. parenthesis*, but the thorax is like *H. convergens*.

H. oregonensis, sp. n.—Very like *H. spuria*, but alutaceous, opaque, very thickly but obsoletely punctulate; head with a small frontal spot, thorax with a narrow border, white; elytra with a sub-basal band and a curved lunule (as in *H. parenthesis*) before the apex, black. L. ·20 inch.

Oregon, (Walsingham). Differs from *H. spuria* by the punctuation and the absence of discal spots on the thorax.

H. sinuata, Muls. Spec., p. 1011; *interrogans*, (Muls.) Op. vii., 139.—Black, with three frontal spots; thorax shining, finely punctulate, narrowly bordered, discal marks distinct; elytra yellow, opaque, hardly punctulate, with the suture black (narrowing out before the apex) and with a broad vitta, suddenly incurved before the apex. L. ·20 inch.

California, New Mexico. (Horn, Ulke.) Sometimes the elytra are shaded with red.

H. 13-punctata, (Linn.) S. N. Ed. x., p. 336, 12; Muls. Sécur., p. 31, 1.—Black, antennæ, tibiæ, tarsi, head in front and spot on the forehead ochreous; thorax punctulate, in front narrowly, at the sides broadly, margined with white, the lateral margin enclosing a black spot; elytra reddish ochreous, a scutellar spot and each with six others black; one on the callus, two immediately below, two obliquely placed behind the middle (generally connected) and one sub-apical. L. ·20 inch.

Hudson's Bay, Massachusetts, California, St. Domingo. Easily known by the pale tibiæ and tarsi.

H. parenthesis. (Say,) J. Phil. iv., 93, 3; (Muls.) Spec., p. 41, 3.—Black, anterior tibiæ, antennæ and mouth pale red; head with three frontal spots, thorax with the anterior border tridentate behind, the lateral border produced at the posterior angle, and with a quadrate yellow spot in the middle of the base, elytra alutaceous, rather obsoletely punctulate, with the apex acuminate and produced, orange-yellow, and triangular sutural spot dilated behind the scutellum, a spot on the callus joining the base, and a deeply curved sub-apical lunule black. L. ·20 inch.

Northern States, Pennsylvania, Oregon, Kansas, New Jersey. The apical lunule sometimes forms a mere irregular blotch.

This is the representative of the Siberian *H. amœna.*

H. falcigera, sp. n.—Black, clearly and finely punctulate; head with a small frontal spot yellow; thorax with a narrow uniform border yellow, no discal spots; elytra yellow with the suture black (narrowing out before the apex) and each with a black equally broad vitta suddenly incurved before the apex; meta-epimera black. L. ·22 inch.

Slave Lake, Hudson's Bay. (Leconte, Ulke.)

H. americana, sp. n.—Black, tibiæ, tarsi, antennæ and mouth pale red; head with a medial frontal spot, thorax punctulate, anterior border very narrow, lateral rather broad but deeply emarginate; elytra clearly and more strongly punctate, the suture narrowly black to near the apex, their color suddenly dilated at one-third; on each besides is a black vitta bifurcate at its apex and a sub-apical spot (these two sometimes join together). L. ·20 inch.

Kansas, Hudson's Bay. (Leconte, Ulke.)

The meta-epimera are black, so that it is the representative of *H. arctica.*

ADONIA, Muls. Sécur., p. 39. (Type *constellata.*)

Differs from *Hippodamia* by the thorax margined at base, and the complete semicircular metacoxal lines.

A. constellata, (Laich.) Tyrol. Ins. i., 121, 6; *mutabilis,* (Scriba) J. f. Ent. i., 183, 141; Muls. Sécur., p. 39, 1.—Black, tibiæ, antennæ and entire front of the head pale; thorax with a narrow border, an abbreviated medial line

connected with the anterior margin and a round dot on either side white; elytra clearly and rather coarsely punctate, with a scutellar spot and six others (as in *Hippodamia*) variously united or absent. L. ·19 inch.

Nova Scotia. (Leconte.)

ANISOSTICTA. Chev.

Mesocoxal line visible, claws simple, thorax sinuate but not margined at base, elytra punctate, not alutaceous.

A. strigata. (Thunb.) Ins. Suec. ix., 113; *bitriangularis*, Say; *multiguttata*, Rand. Bost. J.—Ovate, black, legs, antennæ, sides of abdomen and last segment yellow; thorax and elytra yellow, evidently punctate; thorax with two obtriangular spots (the external corner often isolated as a dot); elytra each with eight spots and a common bilobed scutellar spot black (the two pairs near the suture are often confluent, and then the external row forms a sinuous band. L. ·13 inch.

Canada, Vancouver, Illinois.

A. episcopalis. (Kirby) Faun. B. A., p. 228, 309.—Elongate, parallel, bright yellow, body black; head black behind and with two black vittæ on the point; thorax rounded behind, sinuate before the posterior angles, rather finely punctate, with a large 3-lobed black mark on either side the median line; elytra more strongly punctate, suture narrowly and a discoidal vitta more broadly black (neither of them reaching the apex). L. ·15 inch.

Canada, (Ulke.) Kansas, (Leconte.)

A. seriata. (Mels.) Pr. Acad. iii., 177; *litigiosa*, (Muls.) Trim., p. 31. 1.—Very like the common *M. maculata*, and similarly colored; the head is, however, black and without the triangular frontal mark; the suture has three common spots, one elongate oval, sub-scutellar, one below the middle and one sub-apical, both rounded; the eight dorsal spots are confluent externally, which is not the case in *Megilla*. L. ·20 inch.

Middle and Southern States.

COCCINELLA. Linn.

Metasternum margined in front, posterior tibiæ grooved, meta-coxal line angulate externally.

A.—*Mesosternum emarginate in front, sides of thorax broadly* reflexed.

C. affinis, Rand. Bost. J. ii., 50, 27; *venusta*, Mels. Pr. Acad. iii., 178; *notulata*, (Muls.) Trim., p. 83, 6.—Broadly ovate, black, head with the antennæ and a narrow band round the eyes red; thorax and elytra alutaceous, equally (closely and rather finely) punctate, together with their epipleuræ red with black marks; beneath black, meso- and meta-epimera white. L. ·23 inch.

Lake Superior, Middle and Southern States, Yucatan.

Thorax normally with two approximated round dots in front of two converging elongate basal dashes black, or black with the anterior angles yellow, eltrya each with two sub-basal and two medial spots black

(the inner medial spot prolonged almost up to the scutellum), also a large sub-apical spot generally reaching the suture, or black with an internally abbreviated red fascia beyond the middle.

B.—*Mesosternum straightly margined, thorax finely margined.*

a.—*Meso- and meta-epimera conspicuously white, thorax white in front.*

C. trifasciata. Linn. S. N., p. 365, 6.—Hemispherical, black, punctulate, thorax at the anterior angles with a quadrate white spot above and below and the anterior margin white; elytra orange, with three fasciæ black, one sub-basal, common, the other medial and sub-apical, abbreviated at both ends. ♂ head entirely white in front. L. ·22 inch.

Var. **juliana,** Muls. Op. vii., 135; *barda,* Lec. Pr. Acad. (1860), p. 286.—Elytra with the basal band only left.

Var. **Eugenii,** Muls. Mon., p. 95, 35.—Elytra with the basal band divided.

Var. **subversa** Lec. Pr. Acad. vii., 19.—Elytra spotless.

Lake Superior, Oregon, Siberia, Lapland.

C. difficilis. sp. n.—Very like *C. trifasciata* and similarly punctate; the head has two white spots in front and the thoracic angles have a quadrate white spot; the elytra have a scutellar spot, and each three others black; one medial moderately rounded, one sub-apical transverse large, one small sub-marginal, a little nearer the base than the medial one. L. ·22 inch.

Utah. (Horn.)

This may best be described as being *C trifasciata* with the thorax not white in front, the basal band gone and the medial divided.

C. 9-notata. Hbst. Käf. v. 269, 8.—Very like *C. trifasciata,* but larger, alutaceous, very obsoletely punctulate: the elytra markings are typically one common scutellar spot, one on the callus, one small near the margin (connected with the preceding sometimes), one large discoidal, one sub-apical. L. ·26—·30 inch.

Var. **franciscana,** Muls. Op. iii., p. 19.—Elytra spotless.

Atlantic Region, Mexico, Guatemala.

b.—Meso-epimera white, meta-epimera sometimes whitish in the ♂.

* *Elytra alutaceous, obsoletely punctulate.*

C. 5-notata, Kirby, Faun. B. A. vi., 230, 313.—Black, elytra orange, with a sub-basal common fascia, a transverse medial spot near the suture and another towards the apex near the margin. L. ·28—·30 inch.

Var. **transversalis,** Muls. Trim., 117.—Basal band divided, or only the scutellar spot left.

Var. **californica,** Mann, B. M. xvi., 312.—Elytra entirely pale.

Siberia, Hudson's Bay, Greenland, Kansas, Utah, California, Mexico.

This may be known from the two following by the epipleura of the thorax which have the anterior angle alone narrowly white, where, as in *C. monticola* and *C. prolongata,* it is as broadly white as the spot above.

C. monticola, Muls. Trim., p. 115; *lacustris,* Lec., Pr. Acad. vi., 131.—Black, thorax at the anterior angles with a quadrate white spot; elytra orange with a large scutellar spot, and each with a broad oblique medial fascia, and a shorter sub apical one black. L. ·28—·30 inch.

Lake Superior, Oregon, Vancouver. I think this identical with *C. nivicola* from Siberia.

C. prolongata, sp. n.; *monticola* ‡, Lec. Pr. Acad. vi., 131.—Very like *C. 5-notata,* and intermediate between it and *C. monticola,* punctuation more obsolete (much as in *C. 9-notata*), elytra as in the variety *transversalis,* the humeral spot never present, but often with a small sub-marginal spot beyond the medial one (one even with a medial fascia). L. ·27—·29 inch.

Utah, Kansas, California.

This differs from the others by the anterior angles of the thorax, the white spot is prolonged acutely on to the disc, and the margin is often narrowly white; in both the others the spot is quadrate. I have seen a variety in Dr. Horn's collection with the spots confluent irregularly.

*** *Elytra strongly punctulate, shining.*

C. tricuspis, Kirby, Faun. B. A., 231, 314.—Black, ovate, less convex, thorax with the anterior angles triangularly whitish; elytra orange with a common black sub-basal fascia, tridentate in front, and each with a triangular sub-apical spot black. L. ·19 inch.

Hudson's Bay, Canada, Lake Superior, Kansas, Siberia.

C.—Epimera black, tibiæ pale.

C. annectans, sp. n.—Oval, black, tibiæ, antennæ and mouth pale reddish; head with two white spots bordering the eyes; thorax short, yellowish-white, with a lateral dot and a discoidal M-like mark black (this design is variable); elytra with a common scutellar spot (sometimes bilobed) and each with seven others black; two small near the base (the outer one largest), three across the middle (the outer smallest), two before the apex visibly punctulate. L. ·20 inch.

Colorado. (Horn.) Elytral pattern very variable, of the three before me no two are precisely alike.

This differs from any *Coccinella* by the pale tibiæ and black epimera, but the angulate coxal line and margined metasternum place it in this genus.

CYCLONEDA, Crotch. (*Daulis* ‖ Muls.)

Placed in another division by Mulsant, but really very closely allied to *Coccinella* and forming a link between it and *Harmonia.* Tibial spurs short and weak, metasternum margined, form convex, thorax rather broadly reflexed, metacoxal line following the apical

margin of the segment, but distinct from it; not angulate externally; epipleura of the elytra concave.

C. sanguinea. (Linn.) Cent. Ins., n. 11; *munda*, Say, Bost. J. i., 202, 1.—Black, alutaceous, finely punctulate, thorax with the front, sides and hind angles bordered with white, the front margin gives off three white branches, the lateral ones sometimes reaching the base; elytra bright red, spotless. L. ·16—·29 inch.

♂, head white in front; prosternum and meso-epimera white. ♀, head with two white spots, body black.

North and South America, abundant.

The color of the legs, on which Mulsant has laid some stress is entirely inconstant, and so is the presence of the medial tooth on the thoracic border.

C. oculata, (Fabr.) Ent. Syst. i., p. 287, 98; *binotata* ‡, Muls, Trim., p. 322, 19.—Black, alutaceous, very obsoletely and finely punctulate; abdomen red, epimera white; elytra each with an irregular red discoidal spot before the middle, thorax with the sides bordered with white. L. ·18—·20 inch.

♂, head white in front.

Var. **abdominalis,** Say.—Entirely pale ochreous, thorax with seven black dots, five discoidal (forming an M-like mark), two lateral; elytra each with eight black dots; four basal, three medial, one sub-marginal before the apex.

This form often has a large black triangular mark in the posterior half of the elytra.

Southern and Western States, California, Texas, Mexico.

ADALIA. Muls.

Metacoxal line complete semicircular, antennæ short, thorax with the sides more or less concave.

A. frigida. (Schn.) Mag., 172, 29; *hyperborea*, Payk. F. S. ii., 39; Muls. Trim., 53, 5; *melanopleura*, Lec. Pr. Acad. (1850), p. 286; *ophthalmica*, Muls. l. c., 56, 6.—Ovate, black, tarsi rufescent; head with two yellow frontal spots; thorax yellowish-white with an M-like discoidal mark, and a lateral dot black (or black with the front, sides and basal bilobed spot yellowish); obsoletely punctulate; elytra clearly punctate, with a narrow medial and sub-apical fascia, both abbreviated, black, margin with paler, and consisting of three and two spots respectively; either or both (*barda*, Lec.) may be wanting, or two disconnected spots may be left (*ophthalmica*). L. ·18 inch.

Hudson's Bay, New York, Ohio, Vancouver, Kansas, Missouri, California.

A. bipunctata, (Linn.) Syst. Nat., p. 364, 2; Muls. Séc., p. 61, 3.—Very closely allied to the preceding by its coloration; but apparently not so variable as in Europe; all the North American specimens are referable to the typical form in which the elytra have each a tolerably large rounded discoidal spot; it is larger than *A. frigida*, and the metacoxal line is exactly semicircular. L. ·19 inch.

Var. **humeralis**, Say, J. Acad. iv., 95, 8.—Black, humeral angles and a post-medial dot red.

Canada, Nova Scotia, New York, Middle and Western States, Nebraska, New Mexico, Arizona.

This variety is common in Europe, but exceedingly rare here.

A. Ludovicæ, Muls. Mon., p. 36, 3.—Head and thorax whitish, that black black posteriorly, this with five black spots; elytra red, disc with a large black dot; ventral segments and legs orange, those black on the middle. L. 1½ lin.

North America. (Felix.)

HARMONIA, Muls.

Antennæ short, club close, last joint large, thorax with the sides concave, base not margined, claws dentate.

H. picta, (Rand.) Bost. J. ii., 51, 30.—Oval, rather depressed, black; legs orange, head yellow, with two interrupted frontal vitta black; thorax scarcely punctulate, very short, spotted with black and very variable; elytra closely and distinctly punctate; underside black, prosternum and epipleuræ yellow, episternum black; mesosternum and three sides pieces yellow, metasternum black, episternum and epimera yellow. L. ·17 inch.

Hudson's Bay, Nova Scotia, Lake Superior, Wisconsin, Middle and Southern States, Mexico.

The elytra are entirely pale, or with a longitudinal narrow dark line, and a spot on either side, or almost black. The coxal plates reach the margin and are not limited exterally.

Ventral process not margined, metasternum margined, the angles reflexed, tibiæ hardly sulcate.

H. cyanoptera, Muls. Trim., p. 825.—Sub-hemispherical, rufo-testaceous, sides of metasternum infuscate; elytra blue-green, with the margin very narrowly and a marginal spot immediately before the apex fulvous, epipleuræ infuscate; antennæ short, club darker, thorax faintly punctate, elytra closely and clearly punctate; mesosternum not emarginate. L. ·22 inch.

Arizona. (Ulke.)

ANISOCALVIA, Crotch.

Punctuation of elytra coarse, unequal, epipleuræ not reaching the apex, anterior tibiæ not sulcate, ventral process and apex of metasternum margined, thoracic epipleura foveolate for the antennæ, scutellum punctate, coxal line continued along the apical margin of the first segment.

A. 14-guttata, (Linn.) S. N., p. 367, 22; var. *similis*, Rand. Bost. J. ii., 50, 28; *cardisce*, Rand. l. c., p. 32, 50.—Black, legs and sides of ventral segments broadly orange, head orange or nearly black; thorax black, front and side-margins orange, also often with a medial line and spot near the posterior angles orange, distinctly punctate; elytra black, finely punctulate, with numer

ous large punctures intermingled; normally each with seven spots pale; one near the scutellum, three across before the middle, two across behind it, and one before the apex; but very variable; sometimes black with a triangular discoidal spot. L. ·23 inch.

New England States.

The normal colors are light red with pale white spots, but these black varieties occurs in Siberia.

Var? **hesperica.**—Ventral segments and metasternum almost smooth.

Arizona. (Horn.)

A. 12-maculata. (Gebl.) Mém. Mosc. ii., 76, 3; Muls. Trim., p. 86, 8.—Convex, sub-hemispherical, black; head black, clypeus in front, labrum and the border of the eyes testaceous; thorax and elytra distinctly and closely punctate (these rather unequally) with their epipleura testaceous (or pinkish-white alive) and marked with black; tibiæ, tarsi, sides of ventral and the whole of the anal segments testaceous. L. ·22 inch.

Lake Superior, Hudson's Bay, Siberia.

Thorax with two very large black discoidal marks, leaving only a thin marginal and medial line pale; elytra with two common (one sub-scutellar, one towards the apex) and five other spots black (one sub-basal, two round almost contiguous medial, one on the apical third, one triangular apical). Metacoxal line effaced externally, ventral process sparingly punctate, not margined; metasternum not margined at apex.

ANATIS. Muls.

Antennæ elongate, club lax, metacoxal line effaced externally, prosternum compressed in front, epipleuræ reaching the apex, elytra with a small sutural tomentose patch close to the apex in the ♀.

A. 15-punctata. Oliv. Ent. vi., p. 1027, 57; *mali*, Say, J. Acad. iv., 93, 2.—Very broad, rather convex, black; head black, punctate, eyes emarginate by the yellow antenniferous tubercles and two triangular spots on the front yellow; thorax and apical half of epipleura yellowish-white, posterior angles obtuse, alutaceous, finely and closely punctulate, marked with an N-like discoidal spot and a lateral dot black; elytra alutaceous, closely and decidedly unequally punctulate; sides somewhat explanate, margin itself thickly reflexed, with a row of deeper punctures: legs, sides and apices of ventral segments orange; meso- and meta-epimera white. L. ·30—·38 inch.

Atlantic region, St. Domingo. (Olivier.)

The elytra have each eight black spots ocellated with paler, one on the callus, four forming a medial fascia, and three a sub-apical one.

A. Rathvoni. (Lec.) Pr. Acad., 1852, p. 132, 1.—Very like the preceding, but broader, elytra almost angularly dilated at the sides; thorax and elytra rather more finely punctulate. L. ·38 inch.

California, Oregon. (Walsingham.)

The typical specimen has a very fine obsolete punctuation, but this is abnormal; it may be known, however, by the black epimera.

A. subvittata. Muls. Trim., 138, 2.

The type of this species is in very bad condition; it has the elytra broadly dilated at the sides and the markings are confused; a specimen I saw in Mr. Ulke's cabinet showed the sutural patch of pubescence; the punctuation is extremely fine.

MYSIA. Muls.

Very close to *Anatis*, but the prosternum is not compressed, and the metasternum is distinctly margined in front, the mesosternum is slightly sinuate, and the elytral epipleuræ reach the apex, the meta-coxal lines are obliterate externally.

M. pullata, (Say), J. Acad. v., 301, 1; *notans*, Rand. Bost. J. ii., 49. 26.—Oval, tolerably convex, black; head with two frontal spots yellow; thorax with front margins narrowly, sides broadly white (these enclosing a black dot), finely and obsoletely punctulate; elytra more visibly punctulate, entirely reddish, or with irregular dorsal black ill-defined vitta; legs generally black, meso-epimera white. L. ·28 inch.

Lake Superior, Middle and Southern States.

M. Hornii, sp. n.—Very like *M. pullata*, but rather broader, entirely testaceous red; sides of thorax broadly whitish; thorax extremely minute, elytra very finely punctulate, both finely alutaceous; meso-epimera white. L. ·28 inch.

Oregon. (Horn.) The anterior tibiæ are distinctly grooved throughout on their external face.

PSYLLOBORA, Chevr.

Thorax with the sides broadly concave and diaphanous, anterior margin hardly sinuate; scutellum very small, mesosternum and central process margined, elytral epipleuræ continuous to apex, antennæ long, club lax, elytral punctuation coarse, uniform, anterior tibiæ not sulcate.

P. 20-maculata, (Say,) J. Acad. iv., 96, 9.—Rounded, ochreous-white, thorax with five black spots, two anterior, three basal; elytra with three spots near the suture (one sub-scutellar, one before and one behind the middle), four spots along the margin (one on the callus, one immediately before, one behind the middle and one sub-apical), also a large irregular discoidal mark, often confluent with the four dots round it; the sub-apical spot is also sometimes double; sternum and middle of ventral segments black, epimera and part of meta-episternum white. L. ·3—·10 inch.

Atlantic region.

Var? **tædata**, Lec. Rep. P. R. R. Exp., p. 70.—Smaller, spots mostly brown, and sub-confluent, punctuation fainter.

California.

This variety or race seems pretty constant in California; I have seen, however, equally small faintly punctate specimens from South Carolina and Texas; these latter have an especially different look, but I think they are all varieties of the common species. Boheman (Eugen. Resa., p. 203) has described it again as *P. 20-signata* from Taite (!), and as *P. interspersa* from Sydney (!).

P. nana, Muls. Trim., 181, 13.—Ovate, clear pearly-white, suture narrowly black, with two common black spots, also with four submarginal, two basal and three dorsal spots, variously united; punctuation evident. L. ·10 inch.

Florida. (Ulke.) Cuba, Jamaica.

CHILOCORIDES.

Antennæ very short, genæ produced, margining the eyes, form convex, sides of elytra generally explanate, head vertical.

CHILOCORUS, Leach, Ed. Encycl. ix. (Type *cacti*.)

Labrum hidden, anterior tibiæ with an external spine.

C. bivulnerus, Muls. Trim., p. 460, 10.—Very convex, shining, black, finely punctulate; thorax with the sides opaque; elytra each with a red discoidal spot; ventral segments (ventral process more or less black) and meso-epimera red. L. ·20 inch.

Var. **fraternus**, Lec.—More finely punctulate, elytral spot generally larger.

Lake Superior, Kansas, Middle and Southern States.

C. cacti, (Linn.) S. N. Edit. i., p. 584; Muls. Trim., p. 459, 8.—Resembling *C. bivulnerus* in form, but the sides of the thorax are much more rounded (so that the posterior angle is obliterated); the elytral spot is much larger and the body beneath entirely red (legs black). L. ·18—·20 inch.

Mexico, California, Lower California.

EXOCHOMUS, Redb. Tent. (Type *tripustulatus*.)

Anterior tibiæ unarmed, labrum visible, coxal lines complete.

E. Pilatei, Muls. Trim., p. 478; *texanus*, Lec.; *pleuralis*, Lec.—Very convex, black, opaque, alutaceous, very finely punctulate; thorax, with the sides straight, posterior angles rounded; elytra with the margin not thickened, each with a sub-orbicular red spot on the basal third; sides of body and base of epipleuræ testaceous. L. ·25 inch.

♂, head in front, anterior angles of thorax and legs yellowish-red.

Texas, New Mexico, California.

Probably a variety of *E. plagiatus*, Oliv.

E. tripustulatus, (DeG.) Mém. v., 395, 2; Muls. Trim., p. 478, 2.—Very convex, black, extremely obsoletely punctulate; elytra with the margins

thickened, each with an oblique red spot on the callus, and a common elongate red sutural spot at three-quarters; epipleura at base and sides of body pale red. L. ·25—·26 inch.

♂, head in front, anterior angles of thorax and base of femora pale red.

Pennsylvania, Georgia, Texas.

E. marginipennis. (Lec.) Ann. Lyc.—Rounded, sub-convex, black, thorax opaque, alutaceous; elytra shining punctate, with the margin and a sub-scutellar spot testaceous; tibiæ and tarsi testaceous. L. ·11—·15 inch.

♂, head, legs, anterior margin and sides of thorax yellowish-red.

Var. æthiops, Bland, Proc. Ent. Soc.—Hardly visibly punctured, alutaceous, entirely black.

This species is very variable in coloring, the testaceous color sometimes predominates, enclosing two irregular spots on each elytron; or as in the Colorado specimens the whole insect is black.

The punctuation also varies from the strong clear punctuation of the New England specimens to the opaque smooth surface of the Western ones.

E. contristatus, Muls. Trim., p. 492, 16; *childreni,* Muls. l. c., p. 1035; *quexi,* Lec. Proc. Phil. vi., p. 232, 1.—Orange-red, rounded, sparsely and faintly punctulate, body beneath black; thorax and a sub-apical spot on each elytron black. L. ·10 inch.

♂, head, legs, anterior angles (narrowly) and sides (broadly) of thorax orange.

Florida, New Mexico.

ŒNEIS. Muls. Trim., p. 500. (Type *obscura.*)

Elytra deeply foveolate for the femora, prosternum produced in front so as to conceal the mouth.

O. pusilla, Lec. Proc. Phil. vi., 135, 2; *puncticollis,* ♀, Lec. l. c.—Short almost globose, very shining, black, thorax sparingly punctured, distinctly margined; elytra impunctate, legs piceous. L. ·06—·07 inch.

♂, head, sides of thorax and legs yellow.

Georgia, Missouri, Pennsylvania, New York, Washington.

HYPERASPIDES.

Elytral epipleuræ foveolate for the femora, abdomen with six segments in the female, seven in the male; surface glabrous, antennæ very short.

BRACHYACANTHA, Dej. (Type *dentipes,* F.)

Anterior tibiæ armed with an acute spine on the external margin.

Cocc. felina, Fabr., may be referable to this genus, but the description does not fit any known species accurately. *B. bis-3-pustulata,* (Fab.) is refered by Mulsant (p. 350) to the United States, but I have never seen any specimens.

B. lepida. Muls. Trim., p. 523, 4.—Sub-quadrate, yellow, sternum, middle of ventral segments and base of femora black; thorax with the base broadly black, 4-dentate, the margin hardly visible; elytra with a common sutural spot not reaching the base, strongly narrowed behind the middle, and emitting a recurved hook before the apex which it does not reach; also each with two rounded black spots, one before and one behind the middle; punctuation fine, undersurface sparingly and faintly punctate. L.

Texas. (Leconte.) Mexico.

B. dentipes. (Fab.) Syst. El. i., 381, 134.—Convex, oblong, black; tarsi, knees, sides of thorax, elytra with an anterior fascia and a posterior sub-apical spot, orange (the fascia is interrupted at the suture and is of very variable width); elytra clearly punctate, undersurface closely punctate. L.

♂, head and front margin of thorax, and sides broadly yellow; third ventral segment with two tubercles, fourth depressed. ♀, head with a vertical spot pale.

Mexico, Georgia, Kansas, Illinois, Texas.

Var. **tau,** Lec.—Spots confluent, thorax entirely orange, elytra black at the base and with two medial spots black.—Kansas.

Var. **quadrillum,** Lec.—Fascia obsolete, apical spot well marked.—Texas.

B. ursina. (Fabr.) Mant. i., 61, 98.—Convex, oval, underside black, base of femora infuscate; elytra each with five yellow spots; one humeral, one larger, basal, two medial (one marginal, one discoidal), one sub-apical, free; punctuation clear, underside sparingly punctate. L,

♂, head and front margin of thorax yellow. ♀, head yellow.

a.—**10-pustulata,** (Mels.) Proc. Phil. iii., p. 179.—Much smaller, female sometimes with the head black, and an orange spot on the vertex.

b.—**flavifrons,** Muls. Trim., p. 531, 9.—Similar to the type, but with the discoidal spot absent.

c.—**basalis,** Mels. l. c.; *confusa,* Muls. Trim., p. 537, 13.—Again similar, smaller, apparently more rounded, and with both the medial spots obsolete.

d.—**albifrons,** Say, J. Phil. iv., 94.—Elytral spots suffused, leaving two black spots on each elytron.

This species is exceessively variable in size and markings, but after an attentive study of the speeimens in Dr. Leconte's cabinet I am unable to diseover any charaeter to separate them.

It appears to be larger and more variable in the South than in the North, it extends from Lake Superior to Texas, but does not go westward. Intermediate forms between all the races can be found.

B. 4-punctata, Mels. Proc. Phil. l. c.; *diversa,* Muls. Trim., 538, 14.—Also extremely like *B. ursina,* but distinctly rounded, the basal and apical spots alone present, the anterior margin of the thorax is very narrowly yellow in the male, also the humeral angle is yellow in that sex; in the female the head is either black or with an angulated yellow V-like mark; the first ventral segment has the process deeply punctured at its apex. L.

Illinois, Massachusetts, Georgia.

B. indubitabilis, sp. n.—Very close to *B. ursina* in size and coloring, the punctuation is finer and the elytra have no trace of the two basal spots; the two medial spots are distinctly before the middle and not on it as in *B. ursina;* the posterior spot is small. L. ·12 inch.

♂, head, sides (broadly) and front margin of thorax yellow, a sharp yellow tooth projects from the centre of the margin. ♀, head black, with an obsolete orange spot.

Illinois.

B. Bollii, sp. n.—♂.—Convex, rounded sub-globose, black, shining, legs and head yellow; thorax broadly yellow in front and on the sides (the black color bilobed in front); elytra faintly punctate, each with five ill-defined yellow spots (two basal, two medial, one sub-apical, free); the two basal ones are partially confluent as are also the two marginal ones. L. ·10 inch.

Var.—Spots suffused.

Dallas, Texas.

HYPERASPIS.

Distinct from *Brachyacantha* by the simple tibiæ, but agrees in all other respect. *H. floridana*, Muls. (p. 1040), is evidently not a *Hyperaspis*, and appears from description to be *Scymnus amabilis*, Lec.

H. lateralis, Muls. Trim., p. 65.—Rounded, sub-convex, shining black, clearly punctate; elytra with marginal band from the humerus to the middle, a discoidal spot about the middle near the suture, and another sub-apical testaceous yellow L. ·12 inch.

♂, head, thorax with anterior margin (very narrowly) and side (triangularly), anterior tibiæ and tarsi yellow.

California. (Horn.) Mexico.

H. fimbriolata, Mels. Proc. Phil. iii., p. 180; *cincta*, Lec.—Black, rounded, sub-convex, shining, punctate; with a tolerably broad marginal band testaceous. L. ·10—·12 inch.

♂, head, thorax in front (narrowly) and on the sides yellow.

Kansas, Lake Superior, Pennsylvania, California.

Type of *H. cincta* is smaller and more rounded, but does not differ specifically.

H. tæniata, Lec. Proc. Phil. vi., 134, 10.—Black, shining, ovate, sub-convex, punctate; elytra with a lateral irregular triangular spot testaceous red. L. ·10 inch.

♂, head in front, sides of thorax and anterior legs red.

San Diego. (Leconte.)

H. dissoluta, sp. n.—Very closely allied to *H. fimbriolata*, from which it only differs by the narrow marginal band, which extends two-thirds of the length of the elytra, and leaves a free sub-apical spot. L. ·9—·10 inch.

California, (Horn.) Lake Superior, (Lecoute.)

H. Lewisii, sp. n.—Oblong oval, black, shining; elytra red with a rather large sub-transverse irregular red spot slightly before the middle, and almost reaching the margin. L. ·13 inch.

♂, head in front, front margin of thorax very narrowly, sides broadly, white; anterior legs testaceous.

United States.

H. disconotata. Muls. Trim., p. 653, 3.—♀.—Black, oval, convex, thorax finely punctulate, opaque; elytra shining, punctate; each with five spots yellow, two basal (connected), two marginal (connected) and one discoidal (subelongate); body beneath finely and sparingly punctate. L. ·12 inch.

Lake Superior.

H. signata, Oliv. Ent. vi., 92, pl. 7, f. 107: *binotata*, Say, J. Acad. v., 302; *normata*, Say, l. c. ♀; *leucopsis*, Mels. Pr. Phil. iii., 179.—Rounded, convex, rather shining, thickly punctate, beneath coarsely punctate, anterior legs piceous; elytra each with a red discoidal rounded spot. L. ·9—·13 inch.

Var.—Elytra with a sub-apical red spot.

Georgia, Illinois, Pennsylvania.

H. proba, (Say) J. Acad. v., 302.—Also very near *H. normata*, but more rounded, less convex, smaller, less strongly punctured, thorax with the sides yellow, elytra with a small discoidal red spot, and two apical minute dots reddish yellow. L. ·8—·12 inch.

♂, head and anterior margin of thorax yellow.

Pennsylvania, Illinois.

H. pratensis. Lec. l. c. — ♀.—Short, rather broad, sub-convex, black, shining, ventral process and meta-sternum deeply punctate; legs red; upper surface punctate, thorax finely so, sides broadly yellow; elytra each with three yellow spots; one a little before the middle discoidal, orbicular (larger than the others), one marginal (a little below the first) and one sub-apical. L. ·12 inch.

Kansas. (Leconte.)

H. inedita, Muls. Trim., p. 684, 30.—Closely allied to *H. signata*, but distinct by its red legs; the elytra have each a discoidal red spot, which is, however, distinctly behind the middle (and not before it as in *H. signata*. L. ·10 inch.

♂, head and sides of thorax broadly reddish-yellow.

North Carolina.

H. bigeminata, (Rand.) Bost. J. ii., 32; *Guexi*, Muls. Trim., p., 687.—Rounded, convex, shining, black; elytra strongly, thorax finely, punctured; thorax with the sides broadly yellow, elytra with a testaceous sub-apical spot. L. ·10—·11 inch.

Texas, Massachusetts.

H. lugubris, (Rand.) Bost. J. ii., 52; *jucunda*, Lec. Proc. Phil. vi., p. 134, 9.—Shortly oval, sub-convex, opaque, alutaceous, beneath rufescent, sternum black; above black, sides of thorax, margin of elytra (from the shoulder to

beyond the middle) and two spots on each (one before the middle, one sub-apical) yellow. L. ·12 inch.

♂, head and thorax entirely rufous.

Illinois, Massachusetts.

H. venustula, Muls. (p. 671, 16), appears to be a male of this species with the marginal band divided.

H. Hornii, sp. n.—♀.—Closely allied to *H. undulata*, but smaller, shorter and rounder, more finely punctate, elytra with a straight margin for two-thirds, a discoidal spot (much nearer the base than in *undulata*), and a triangular sub-apical spot yellow. L. ·8 inch.

California. (Horn.)

H. undulata, (Say) Journ. Phil. iv., 92; *elegans*, Muls. Trim., p. 658.—Oval, convex, shining, black, punctate, legs red (femora infuscate); ventral segments faintly punctate; thorax with the sides yellow; elytra each with four yellow spots (three marginal, often connected, one discoidal). L. ·10 inch.

♂, head and front of thorax yellow.

Pennsylvania, Canada, Vermont, Massachusetts, Illinois.

Var. ? **4-oculata.**—Elytra with the discoidal and apical spots alone visible; other specimens from California show the two marginal spots, though reduced in size. L. ·10 inch.

California.

H. mœrens. (Lec.) Lake Sup., p. 238; *consimilis*, Lec. Proc. Phil. vi., 134, 6.—♀.—Ovate, sub-depressed, black, shining, punctate; thorax with the sides yellow; elytra with the margin, a basal spot and a discoidal vitta beyond the middle, yellow. L. ·9—·10 inch.

Lake Superior. Leconte has made this the type of a new genus *Oxynychus*, characterized by the simple claws, but I fail to see any sharp line of demarcation in this respect; in fact the basal dent is very difficult to observe in the more depressed species. *H. consimilis* is clearly only a brightly colored specimen of this species, the original specimens were all dark varieties in which only traces of the markings remain.

H. annexa, Lec. Proc. Phil. vi., 133, 4.—Ovate, sub-depressed, black, closely punctate, shining; sides of thorax, elytra with the margin and a dorsal vitta yellow; this vitta starts from the base and is united with the marginal vitta at the apex. L. ·10 inch.

♂, head yellow, vitta broader.

Vars. **quadrivittata**, Lec. l. c. n. 5.—Dorsal vitta narrow, not reaching the base, or joining the margin alone.

San Francisco, Kansas, Illinois.

Variable, one male has the thorax entirely rufous.

HYPERASPIDIUS, g, n. (Type *trimaculatus*.)

Characters of *Hyperaspis*, but distinct by the epipleuræ of the elytra not being fovcolate for the femora.

H. trimaculata, (Linn.) S. N. Ed. xii., 592, 45; *vittigera*, Lec. Proc. Phil. vi., 133, 2.—Oblong, beneath piceous; above yellow, thorax black with he sides yellow; elytra yellow with the suture and a dorsal vitta black (neither of these reach the base or apex), punctuation variable. L. ·8—·13 inch.

♂, head and thorax yellow (the latter with the base black).

Mexico, Kansas, Dacota.

H. arcuata, (Lec.) l. c. n. 3.—Allied to *H. trimaculata*, but elytra entirely black, with a narrow pale margin along the base and down as far as the middle. L. ·8 inch.

♂, head in front and anterior margin of thorax irregularly yellow.

California. (Leconte, Horn.)

H. militaris, (Lec.) l. c. n. 1.—Also allied to *H. trimaculata*; elytra yellow; suture entirely black, and a black dash on the callus; thorax with the sides broadly yellow. L. ·10 inch.

♂, head and thorax yellow.

South Carolina, Florida.

CEPHALOSCYMNUS, g. n.

Distinct by the very narrow transverse thorax, base not margined front angles produced, porrected, head large, vertical, eyes large, oval, rather finely granulated, antennæ excessively short, apparently 11-jointed, two basal joints thickened, club oval, acuminate; maxillary palpi sub-securiform, rather pointed; prosternum broad, sub-quadrate cavities open behind, meso-sternum broad; epipleuræ of elytra flat cuminate at two-thirds; meta-sternum not margined in front, meta-coxal line complete, semicircular, extending about one-half the length of the segment.

C. Zimmermanni, sp. n.—Broadly ovate, not convex, dark green, slightly shining, clothed with a short sub-erect sparse whitish pubescence; head and thorax rather closely distinctly punctate, elytra more sparingly and more coarsely punctate; undersurface smooth. L. ·6—·7 inch.

I have named this species in honor of that acute observer, the late Dr. Zimmermann, in whose collection it was already distinguished as a new genus. Specimens exist also in the cabinets of Dr. Leconte and Mr. Ulke.

Revision of the DYTISCIDÆ of the United States.

BY G. R. CROTCH, M. A., CANTAB.

This family is one of considerable interest, from the very wide distribution of some of its species. Several American species are here considered identical with their European forms, and probably further comparisons will show that the number common to the two countries may be increased.

The difficulty of determining the species is very great in some of the genera, and only large series of specimens can resolve it. The peculiar dimorphous females occur here as in Europe, only in *Dytiscus* proper, nearly all are permanently smooth in the ♀, while in England all except one are permanently sulcate. In other genera as *Agabus* and *Acilius* the smooth and rough females are equally common. The number of genera has been considerably increased, but I am unable to group them into larger divisions with any exactitude. Particular attention has been paid throughout to the form of the metasternum and the coxal appendages, characters neglected by all except C. G. Thomson.

The annectant families *Amphizoidæ* and *Pseudomorphidæ* lead me to suppose that this family ought not to be separated from *Carabidæ*, but that the first three divisions should form one natural family, distinguished by the antennæ, palpi, and first ventral segment.

Two very distinct sub-families are indicated:

Coxal plates very large, covering the ventral segments.....**HALIPLIDES.**
Coxal plates large, connate with the metasternum.....**DYTISCIDES.**

HALIPLIDES.

A. Thorax quadrate with lateral impressed line.....**Brychius.**
Ab. Thorax narrowed in front.
B. Interstices of the elytra punctate.....**Haliplus.**
Bb. Interstices impunctate.....**Cnemidotus.**

BRYCHIUS, Thoms. (Type *elevatus.*)

B. Hornii, sp. n.—Pale yellow, head and thorax obsoletely punctate; elytra striate punctate, interstices smooth, the punctures form narrow black lines, and towards the margin are three clouded black spots; beneath ochreous, metasternum punctate. L. ·14 inch.

California. (Horn.)

HALIPLUS. Latr. (Type *ruficollis.*)

A.—*Thorax punctate without a basal impression.*

H. fasciatus. Aubé. Spec. vi., 30, 18.—Ovate, fulvous, thorax deeply punctate, disc smooth; elytra deeply striate punctate, the punctures becoming finer towards the apex, interstices sparingly punctate, variegated with black irregular spots, apex black. L. ·16 inch.

Middle and Western States. Distinct by the entirely rufous thorax and very finely punctate head.

H. punctatus. Aubé, l. c., 32, 19.—Very closely allied to the preceding, but with the thorax black in front on the middle, head visibly punctate, front narrow; elytra similarly variegated, but with the spots more confluent. L. ·14 inch.

Middle and Southern States.

H. triopsis. Say, Tr. Am. Phil. Soc. ii., 106—Very near to *H. punctatus*, and only separable by the broader front; similarly spotted, but generally lighter, and with the spots more defined and much less extended. L. ·13—·14 inch.

Middle and Western States.

H. borealis. Lec. Lake Sup., p. 212, 32.—Distinct by the more convex eyes, elytra more deeply sinuate at the apex, shorter form; the thorax is scarcely infuscate in front, the head rather closely punctate, sides of thorax and elytra less deeply punctate, the elytral spots are as in *triopsis*, but ill-defined and less visible. L. ·12 inch.

Lake Superior. (Leconte.)

H. concolor. Lec. Ann. Lyc. v., 201.—Allied to the first three species, but smaller, entirely fulvous, without black marks, punctuation less strong, head sparingly punctulate. L. ·12 inch.

California. (Leconte, Horn.)

H. Lewisii. sp. n.—This is the smallest species I have seen, and may be known by the head infuscate behind, elytra not sinuate before the apex, and with well developed markings, (suture black, and black dorsal vitta on either side, between these are one or two spots connecting them), punctuation not strong, interstices very sparsely punctate. L. ·10 inch.

Texas.

H. cribrarius. Lec. Lake Sup., p. 212, 33.—Very distinct by the elytral striæ not deeper at the base; thorax finely punctate, with deeper basal punctures, head with a bilobed black spot on the vertex, color pale ochraceous or sometimes nearly fulvous. L. ·15 inch.

Lake Superior, Dakota.

H. nitens, Lec. (l. c.) is merely a paler variety; other specimens marked *H. subguttatus*, Lec. MSS. are darker in color but not otherwise distinct. This species has the prosternum plane, not margined at the sides as in all the other species.

Ab.—*Thorax with a small impressed plica on either side the base.*

H. ruficollis. DeG. Mém. iv., p. 404; *immaculicollis*, Harris, N. E. Farm. vii., 156.—Very similar to the other species in form, but distinct by the thoracic plica and the ill-defined elytral spots; I have seen a variety from Dakota narrower and with no distinct spots (as in *fluviatilis*, Aubé). L. ·11—.12 inch.

Middle and Southern States. I cannot separate American and European specimens.

H. longulus. (Lec. MSS.) sp. n.—Very close to *H. ruficollis*, but of a distinct fulvous color, less strongly punctate throughout and the thoracic plica distinctly longer. L. ·12 inch.

Lake Superior, Boston.

CNEMIDOTUS. (Ill.) Er. (Type *cæsus.*)

This name was proposed for *Haliplus* by Illiger and was afterwards used by Erichson for this group. The elytral striæ are irregular towards the base which is explained by the tubercle visible in *C. callosus*. The coloration of all the species is precisely similar, namely, reddish-yellow, elytra greenish-yellow with black serial punctures, suture and base more or less black, often with six black spots, three in a triangle about the middle, and three in a small sub-apical triangle.

C. callosus. Lec. Ann. Lyc. v., 201; *simplex*, Lec. l. c. ♀.—Distinct by the elytra having a well marked tubercle in the males. The females are very hard to separate from *C. 12-punctatus*. L. ·12 inch.

San Diego, (Leconte). South Carolina, (Zimmermann).

C. 12-punctatus, (Say) Trans Am. Phil. Soc. ii., 106.

Common throughout the Atlantic region; I find every shade of form in the coxal plates and cannot separate *C. muticus*, Lec., specifically. The spots vary a good deal in intensity. L. ·12 inch.

C. edentulus, Lec. New Species, p. 21, 67.—Apparently distinct by the more elongate form and lighter colors, and the head has the vertex black; but I can find no constant character in the sculpture. L. ·12—·13 inch.

Middle, and Western States.

DYTISCIDES.

Epimera of metathorax triangular, visible..... .....ERETINI.
Epimera invisible.
  Four anterior tarsi similar in the sexes, 4-jointed .....HYDROPORINI.
  Four anterior tarsi 5-jointed.
    Prosternum dilated behind, truncate, meso-epimera linear...NOTERINI.
    Prosternum pointed.
      Two tarsal joints dilated in ♂ .....AGABININI.
      Three tarsal joints dilated.....DYTISCINI.

Tribe 1.—*Eretini.*

ERETES, Lap. (Type *sticticus.*) [*Eunectes* ‖ Erichs. Lec.]

Head large, rather exerted, eyes prominent; thorax with the sides straight, margined, prosternum narrow, acutely pointed; episterna and epimera of the mesosternum vertical, triangular; metasternum narrow, acute, laciniæ linear, dilate at apex, episterna trapezoidal, epimera triangular, distinct; coxal plates emarginate near the epipleuræ (which they only just reach), and with a strong fold on the outer lower edge above the first ventral; coxal processes rounded divergent, marginal lines effaced anteriorly; posterior femora with the apical angle simple; tibiæ short, without deep punctures, claws unequal; elytra with the sutural angle produced, acute; epipleuræ very short, grooved.

E. sticticus, Linn. Syst. Nat. Ed. xii., ii., p. 666, 12.—Obovate, depressed above, sub-convex beneath, ochreous; head punctulate, the occiput and a spot on the vertex black; thorax hardly punctulate; elytra punctate, the punctures black, obsoletely impressed at the base, deeply towards the apex; the three rows of larger punctures visible, a sub-marginal spot about the middle and an irregular fascia towards the apex, also black. ♂ anterior tarsi broadly patelliform, beneath with two sub-equal discs; intermediate tarsi simple, claws very elongate. L. ·48—.60 inch.

Texas, California.

Tribe 2.—*Hydroporini.*

A. Scutellum visible.. ..... **Celina.**

Ab. Scutellum absent.

B. Elytra acuminate at apex, form very short..... **Hydrovatus.**

Bb. Elytra simple, form generally ovate..... **Hydroporus.**

CELINA, Aubé.

Structure of the sternum and coxæ similar to that of *Hydroporus*, from which it differs by the mucronate elytra and the singular intermediate tibiæ of the ♂ which are sharply angulate, the basal portion short and narrow, divided by a narrow peduncle from the broad triangular apical part.

C. angustata, Aubé, Spec. vi., p. 447.—Parallel, elongate, brownish-red; elytra darker, alutaceous; thorax transverse, sides gently rounded, surface very finely and sparingly punctulate, with deep punctures in front and on either side the base; elytra sparingly punctate, dorsal series evident. L. ·14 inch.

Southern States, Cayenne. (Aubé.)

C. grossula, Lec. New Spec., p. 22.

Louisiana. (Leconte.)

This differs from the preceding by its larger size (·22) and slightly closer punctuation.

HYDROVATUS, Mots.

No doubt can exist that Motschulsky's genus should include *Hydroporus cuspidatus*, lately separated by Kiesenwetter under the name *Oxynoptilus*. It may be known by the prosternum triangularly dilated behind the coxæ; apex and the elytra produced into a sutural point.

H. cuspidatus, Germ.; *pustulatus*, Mels. Pr. Acad. ii., 29.—Rounded, sub-convex, alutaceous, head, thorax and underside reddish; elytra brown, base broadly and a narrow sub-apical fascia orange; head smooth, thorax sparsely and faintly, elytra distinctly, punctulate; metasternum closely punctate, abdomen smooth. L. ·8 inch.

Middle, Southern and Western States.

If, as Dr. Schaum thought, this should be really distinct from the European species, Melsheimer's name must be retained.

The Southern species are smaller and nearly piceous, but I can find no structural differences.

H. Hornii, sp. n.—Extremely like *H. cuspidatus*, but twice as large, similarly colored; head shining, with a few punctures on the vertex; thorax visibly but sparsely punctate; elytra at the base (especially externally) very coarsely and closely punctate, with a deep sub-marginal groove; metasternum very coarsely punctate. L. ·13 inch.

Texas. (Belfrage, 899.)

HYDROPORUS. Clairv.

A.—*Body very convex beneath, clypeus generally thickened in front, intermediate femora received into a fovea on the epipleura of the elytra.*

H. inæqualis, Fabr.; *punctatus*, Say, Long's Exp. ii., 271.—Broadly ovate, head, thorax and underside rufous; elytra brownish; head and thorax finely punctate, elytra coarsely, closely and uniformly punctate; sternum beneath deeply, abdomen obsoletely punctate. L. ·12—·13 inch.

Var. Elytra with distinct irregular pale markings.

Middle and Western States.

The ordinary American specimens are nearly unicolorous, but two specimens from Illinois are now before me, marked precisely as in the European species.

H. hydropicus, Lec. Ann. Lyc. v., p. 205.—Very closely allied to *H. inæqualis*, but more closely punctate throughout, especially on the head; the pale markings also are more divided, the broad pale margin being broken up; ♀ opaque. L. ·13 inch.

San Diego. (Leconte.)

H. acaroides, Lec. Proc. Acad., 1855, p. 294.—Rounded, sub-depressed above, head, thorax and legs rufous, sternum and body black; elytra closely and evidently punctate, scutellar region, suture and some variable discal markings black; beneath coarsely punctate. L. ·10 inch.

Western States. The clypeal margin is extremely slight in this species.

H. farctus, Lec. l. c. p. 293.—♀.—Very close to *H. acaroides,* but the clypeus is not margined, and the body is entirely pale beneath; the elytra are opaque. L. ·10 inch.

Massachusetts, New Jersey.

H. convexus, Aubé, Spec. vi., p. 479—Rounded, sub-convex and shining above, brownish-red, without markings; punctuation of the elytra distinct but fine; clypeus evidently margined, sternum very sparingly punctate. L. .07 inch.

Middle States.

H. granum, Lec. l. c. p. 294.—Very close to the above, but smaller, elytra very sparsely and finely punctulate, color paler, sternum even more sparsely punctate. L. ·05 inch.

Southern States. These two species are distinct by the faint punctuation of the underside.

H. latissimus, Lec. Ann. Lyc. v., p. 205.—Form and color of *H. acaroides,* but thorax with a short plica on either side at the base, and the elytra with a lateral fovea before the middle, color rufous, vertex and base of thorax infuscate, elytra yellowish, with distinct sutural striæ, suture broadly black, and an interrupted fascia also black. L. ·09 inch.

San Diego. (Leconte.)

H. dispersus, sp. n.—Very close to *H. latissimus,* but the elytra have not the lateral fovea, the suture is narrowly black, with a hamate vitta and small ante-medial dot also black. L. ·09 inch.

Lower California, Texas. (Horn.)

H. plicipennis, sp. n.—Rather oblong; very distinct by the thoracic striola prolonged on to the elytra, which have each a rounded dorsal costa; head black, nearly smooth; antennæ and legs rufescent; thorax yellow in front, finely punctulate, with an ante-medial interrupted fascia, and each with a triangular sub-apical spot yellow; under surface deeply punctate. L. ·05 inch.

California. (Horn.)

B.—*Oval, not markedly convex beneath, intermediate femora received into a fovea body black beneath.*

H. picatus, Kirby, Faun. B. A. iv., p. 68.—Oblong oval, above brown, beneath black, legs red; head smooth in front, vertex infuscate, punctulate; thorax at the base deeply punctate, the punctures elongate, confluent; elytra with the base very deeply punctate, many of the punctures oblong, behind the middle closely punctate. L. ·20 inch.

Lake Superior. Differs from *H. picipes* by the absence of striæ on the elytra.

H. impressopunctatus, Schall. Act. Hal. ., p. 312; *similis*, Kirby, l. c. p. 68.—Very similar to the above, but elytra with a sutural and two dorsal impressed lines; the elytra also are yellowish, each with four linear black vitta. ♀ opaque, closely not coarsely punctate throughout. L. ·20—·22 inch.

Lake Superior, Boston, Illinois.

H. 10-*lineatus*, Mannh., and *H.* 4-*lineatus*, Mannh., of which typical specimens are before me, appear to me varieties of the above.

H. dissimilis, Har. Cat., p. 472; *dispar* ‖ Lec. Lake Sup., p. 216.—Very similar to *H. impressopunctatus*, but smaller, head and thorax rufous, not infuscate; elytra sparsely punctate, interstices punctulate, the dorsal lines very rarely evident, no distinct pattern. L. ·15 inch.

Illinois, Lake Superior.

H. turbidus, Lec. Pr. Acad., 1855, p. 294, 62.—Shorter and broader than *H. dispar*, and about half the size; elytra coarsely and unequally punctate, without distinct coloration. L. ·11 inch.

Boston.

H. medialis, Lec. Ann. Lyc. v., p. 209.—L. ·15 inch.

San Diego.

H. lutescens, Lec. Ann. Lyc. v., p. 208.—L. ·15 inch.

San Francisco. (Leconte.)

These two species agree in coloration and in having a sutural and dorsal line of large punctures.

H. sellatus, Lec.—Closely allied to the preceding in sculpture, but antennæ and tarsi infuscate; elytra whitish-ochreous with a large common brown patch behind the middle. L. ·15 inch.

Dakotah.

H. suturalis, Lec. Lake Sup., p. 216.

The coloration is that of *H. medialis*, but the punctuation of the elytra is unequal towards the base.

H. ovoideus, Lec. Lake Sup. p. 216.

This species appears to me to be immature and may possibly be *H. suturalis*.

H. patruelis, Lec. Pr. Acad., 1855, p, 298; ♂ *discoideus*, Lec. l. c.

I should have been unwilling to separate this from *H. suturalis;* it is, however, larger and of a different appearance.

H. fraternus, Lec. Ann. Lyc. v., p. 209.—Distinct by the finely punctate elytra without deeper punctures. ♂ distinctly punctate. ♀ sub-opaque, punctulate. L. ·15 inch.

The head and thorax are quite pale in this species, the elytra only having some darker dorsal marks.

H. nubilus, Lec. Pr. Acad., 1855, p. 298.

A variable species in color and punctuation, but more elongate than any of the preceding. The elytra show hardly any traces of the dorsal lines.

Kansas, Colorado, Texas.

C.—*Femora free; clypeus truncate in front.*

H. hybridus, Aubé, Spec. vi., p. 513; *venustus*, Lec. Pr. Acad., 1855, p. 295.—Ovate, tolerably convex above and below, rufous; head and thorax punctulate, elytra pubescent black, punctate, slightly transversely rugulose, with a slightly variable orange marking; under surface coarsely and deeply punctate. L. ·17 inch.

Western and Southern States.

H. mellitus, Lec. Pr. Acad., 1855, p. 299, 73.—Differs in having the clypeus less distinctly truncate, only the coxal plates beneath deeply punctate and its much smaller size. L. ·09 inch.

New England, Vermont.

D.—*Small, oblong, depressed, thorax with a basal plica.*

H. granarius, Aubé, Spec. vi., p. 501.—Broadly ovate, form of the first division, head, thorax and legs entirely rufous; elytra greenish-yellow, distinctly punctate; metasternum sparingly punctate, abdomen smooth. L. ·05 inch.

Southern States. The ovate convex form at once distinguishes this species.

H. cinctellus, Lec. Ann. Lyc. v., p. 206.—Oblong, black above, antennæ, legs and body beneath rufescent; head nearly smooth; thorax rufous in front, base dark, deeply punctate; elytra evidently and closely punctate, with a faint sutural striæ; a sub-basal interrupted fascia, and a curved mark towards the apex orange; ventral surface deeply punctate; ♀ opaque. L. ·065 inch.

California.

H. subtilis, Lec. Ann. Lyc. v., p. 206.—Black, oblong, above sub-opaque, slightly pubescent, faintly punctulate; thorax yellow in front; elytra each with two orange spots, one under the callus, one beyond the middle. L. ·05 inch.

St. Isabel, California.

Distinct by the evident sutural striæ; the surface beneath is entirely impunctate as in all the remaining species of this group.

H. amandus, Lec. l. c. p. 207.—Closely allied to *H. subtilis*, but more elongate, head smooth, not bi-impressed, more visibly pubescent, more varigated with orange and more finely punctulate. L. ·05 inch.

California. (Leconte.) Distinct by the absence of any sutural striæ.

H. lacustris. Say. Am. Phil. Tr. ii., 103.—Very finely punctulate, head and thorax smooth, body black, legs, antennæ and upper surface ochreous, clouded with darker. L. ·055 inch.

Atlantic Region, abundant. Easily recognized by the elytral portion of the basal striæ being much longer than the thoracic portion.

H. pullus, Lec. Pr. Acad., 1855, p. 294.—Glabrous, shining, head, thorax, body and legs rufous; the two former almost smooth; elytra finely and closely punctulate, dorsal series of punctures visible, black with faint yellow vitta. L. ·06 inch.

Louisiana.

H. macularis. Lec. Ann. Lyc. v., p. 206,—Very like *H. pullus*, but without the dorsal punctures and the thorax has a discoidal dark spot; the vittæ also are more broken. L. ·06 inch.

California, (Leconte). Texas, (Belfrage).

H. affinis, Say, Am. Phil. Tr. ii., 103.—Shining, glabrous, nearly unicolorous, dark reddish-brown, finely punctate. L. ·06 inch.

Atlantic Region; not rare.

H. fuscatus, (Zimmermann, MSS), sp. n.—Extremely near *H. affinis* and principally distinguished by the coarse punctuation of the elytra; the head and thorax are almost smooth, except at the base; the color is unicolorous brown with paler shades on the elytra; ♀ sub-opaque. L. ·06 inch.

Lake Superior to Florida.

H. obscurellus, Lec. Ann. Lyc. v., p. 206; *erythrostomus*, Mannh. Bull. Mosc. (1852), p. 305.—Variable in color, faintly pubescent and sometimes nearly vittate in pale specimens. L. ·06 inch.

California, Oregon, Russian America.

H. inconspicuus, Lec. Pr. Acad., 1855, p. 294.—Head, thorax, legs and body beneath bright orange; elytra opaque, closely punctulate, pubescent, brown. L. ·06 inch.

Southern States.

H. flavicollis, Lec. Pr. Acad., 1855, p. 294.—Attenuate behind, thorax rather broad, sides rounded, sub-convex; head, thorax, legs and body beneath yellow; elytra brown, each with two paler yellow spots; upper surface entirely opaque, transversely subrugose. L. ·05 inch.

Illinois, Pennsylvania. Distinct by the thoracic plica not extending to the elytra, and the body punctate beneath.

E.—*Thorax with a basal striola, and with the whole base transversely depressed, sides forming an angle with the elytra.*

H. alpinus, Payk. Faun. Suec.; 12-*lineatus*, Lec. Lake Sup., p. 214.—Elongate oval, beneath black, legs, antennæ and upper surface ochreous; above subopaque obsoletely and sparingly punctulate, beneath sub-rugulose; head with a bilobed fuscous mark, thorax with two obsolete fuscous marks, sides slightly rounded; elytra each with six linear vitta and two submarginal spots fuscous. ♀ elytra dentate before the apex. L. ·17 inch.

Lake Superior, Canada.

H. scitulus, Lec. Pr. Acad., 1855, p. 295.—Black, depressed, antennæ and legs red, head obsoletely punctate; thorax transverse, very finely and sparingly punctulate with a few deeper punctures; elytra with two dorsal lines impressed, and scattered punctures, ochreous, the disc covered with narrow generally confluent brown vittæ; coxal plates and first ventral segment sparingly punctate. L. ·13 inch.

Lake Superior.

H. obesus, Lec.—Evidently allied to *H. scitulus,* but convex, short, rounded, nearly like *H. cuspidatus* in shape; thorax with the disc broadly fuscate; elytra with about five narrow vittæ confluent in various places; the sculpture is similar to that of *H. scitulus,* but the alutaceous surface is more evident; beneath the coxal plates are obsoletely punctate, ventral segments rugulose; ♂ elytra alutaceous, impunctate. L. ·11 inch.

California. (Leconte, Horn.) This seems to be very near *H. rivalis,* Gyll.

F.—*Densely punctate, opaque, posterior femora closly punctate.*

H. rotundatus, Lec.—Oblong ovate, legs, antennæ and body beneath rufous; above finely pubescent, opaque, densely and finely punctate throughout, thorax with obsolete deeper punctures, elytra with traces of the sutural and dorsal striæ; thorax with the front margin and base black, the latter with two large black spots united with it; elytra apparently with 6--7 narrow vittæ of which 2, 6 and 7 are always interrupted in two or three places, these vittæ are often confluent, dentate before the apex, beneath rufous, densely punctulate, opaque. L. ·17 inch.

Canada. Allied to *H. depressus,* Fabr., of Europe by the dentate elytra.

H. striatellus, Lec. Ann. Lyc. v.. p. 207.—Above sub-metallic, pubescent, black, varied with orange, markings; thorax with deeper punctures in front and at the hind angles; elytra each with seven impressed striæ, the external two often obsolete; beneath black, opaque, legs and antennæ rufescent. L. ·17 inch.

California, Oregon. Very variable in markings. Thorax strongly margined at the sides.

H. funereus, sp. n.—Closely allied to *H. striatellus,* but much larger, darker, hardly pubescent, elytra with the first stria evident, the dorsal ones irregular and generally more or less divided into punctures; surface often concolorous. L. ·20 inch.

Lower California. (Horn.)

H. eximius, Mots. Bull. Mosc. (1859). ii., 164.—Opaque, pubescent, densely punctulate, black, varied with yellow: head bi-impressed, rather shining, thorax transverse, sides strongly rounded, margined with deep punctures in front and along the base; elytra each with a rounded dorsal costa, sutural and dorsal line of punctures evident; beneath black, rugose, legs and antennæ rufous. L. ·18 inch.

California. (Leconte, Horn.)

H. addendus, sp. n.—Allied to the preceding, but elytra not costate; thorax with the sides nearly straight, not strongly margined, elytra similarly sculptured, markings more obsolete, black color more developed; underside similar. L. ·17 inch.

Lower California. (Horn.)

H. griseostriatus, DeG. Mém. iv.—Elongate ovate, pubescent, opaque, beneath black, legs and antennæ red; above black, uniformly and densely punctulate, with no trace of lines, elytra with numerous narrow sub-confluent vittæ, or even entirely greenish-black; beneath densely punctulate. L. ·18 inch.

Canada, Lake Superior, California. Some examples are very densely pubescent; the variations in color in this species have caused it to be described under various names: *H. catascopium*, *interruptus* and *parallelus*, Say, are all referable to this species.

G.—*Punctate beneath, posterior femora smooth, with a line of setigerous punctures along the middle.*

a.—*Pubescent, rufous and strongly punctate beneath.*

H. consimilis, Lec. Lake Sup., p. 214.

Thorax very finely margined, body beneath coarsely punctate. Lake Superior.

H. sericeus, Lec. l. c. p. 214.

Very near *H. consimilis*, but thorax with the sides straighter and more sharply margined in front. Lake Superior, Illinois.

H. undulatus, Say, Am. Phil. Tr. ii., 102.

Excessively variable; thorax with a rather broad flattened margin; *H. oppositus*, Say, does not seem to me separable from this species.

H. spurius, Lec. Pr. Acad., 1855, p. 296, 29.

Differs from *undulatus* in not having the clypeus thickened, and the elytra have a sutural row of deeper punctures. Canada.

H. mixtus, Lec. l. c. p. 296, 30.

Very near *H. spurius*, but more elongate and much more sparingly punctate. Nebraska.

H. semirufus, Lec. l. c. n. 32.

Closely and finely punctate. Fort Laramie, Texas.

H. vittatus, Lec. l. c. n. 34.

Very sparingly and finely punctate, the front margin of the punctures raised. Fort Laramie.

H. vitiosus. Lec. l. c. n. 35.

♂ visibly punctate; ♀ very closely punctate.

H. lineolatus. Lec. l. c. n. 33.

Finely pubescent, thorax finely margined, small (·08), elytra regularly vittate.

b.—*Black beneath, thorax very finely margined, equally punctate.*

H. fortis, Lec. Ann. Lyc. v., p. 207.

Distinct by its large size (·26) convex form, silky lustre and aciculate femora.

H. axillaris. Lec. Mels. Cat., p. 32; *humeralis,* ‖ Lec. Ann. Lyc. v., 207.

Smaller than the above and with the shoulders conspicuously pale.

H. subpubescens, Lec. l. c. p. 208; *hirtellus,* Lec. l. c.

These three California, species must be collected in numbers before they can be properly characterized.

H. modestus. Aubé, Spec. vi., p. 576.

Extremely finely punctulate and densely pubescent; even the male is scarcely visibly punctulate.

H. dichrous. Mels. Pr. Acad. ii., 28.

Recognizable by its broad form, pointed behind, head and thorax often rufous, punctuation very fine.

H. americanus, Aubé, Spec. vi., p. 575.

More elongate, sub parallel and distinctly punctulate, also less densely pubescent.

H. signatus. Mann. Bull. Mosc., 1853, iii. p. 161.

Specimens from Canada, Illinois, etc., seem to belong to this species, which is closely allied to *H. dichrous,* but is smaller (·15), more ovate and with the humeral angles pale.

H. humeralis, Aubé, Spec. vi., p. 578.

I have only seen two specimens from Sitkha, both opaque females; the dorsal yellow mark is well defined and recalls *H. palustris* of Europe.

H. puberalus. ‖ Mann. Bull. Mosc., 1853.

Identified by Schaum with a common European species. It is the smallest American species with the disc of the thorax punctate.

c.—*Thorax with the disc generally impunctate, sides finely margined, size small.*

H. tenebrosus, Lec. Lake Sup., p. 214; *lutulentus,* Lec. Pr. Acad., 1855, p. 292, 50.

Resembles *H. americanus* and *dichrous,* but the thorax is smooth in the middle, and is also more strongly margined.

H. tartaricus, Lec. Lake Sup., p. 214; *nigellus*, Mann. Bull. Mosc., 1853.

The only specimen of *H. tartaricus* shows very little trace of pubescence, but this is probably due to abrasion.

H. caliginosus, Lec. Lake Sup., p. 214; *puberulus*, Lec. l. c. p. 214.

Distinct by the thorax with the sides rounded, hind angles obtuse. ♀ opaque. This does not appear to be the *H. melanocephalus* of Europe.

H. tristis, Payk. F. S.; *varians*, Lec. Lake Sup., p. 214; *ruficapillaris*, Mann. l. c.

Nearly glabrous, finely punctulate. Found all along the Arctic Region.

H. subtonsus, Lec. Pr. Acad., 1855, p. 232, 47.

Differs by its more apparent pubescence and broader form. Boston; abundant.

II.—*Thorax broader than the elytra, sides rounded, rather strongly margined.*

H. notabilis. Lec. Lake Sup., p. 216.

Resembles *H. modestus* in sculpture, but is very distinct by the dilated thorax.

I.—*Thorax strongly margined, above glabrous, depressed, sparingly punctate.*

H. collaris, Lec. Proc. Phil., 1855, 292, 53.—Rather broad, sides parallel, behind obtusely rounded, black, antennæ, legs and upper side rufous, sub-depressed, glabrous very sparsely punctate; thorax short, transverse, very faintly punctulate, thickly margined; elytra with the humeral angles not prominent, sparsely punctate, with faint traces of the dorsal striæ; body beneath very sparingly punctate. L. ·14 inch.

Lake Superior.

H. persimilis, sp. n.—Very close to *H. collaris*, but longer, more parallel, thorax smooth, elytra more sparingly punctate, without traces of the dorsal striæ, humeral angles less prominent. L. ·15 inch.

Canada. (Horn.)

H. oblitus, Aubé, Spec. vi.—Also very near *H. collaris*, but shorter and a little broader, thorax nearly smooth, elytra more sparingly and a little more strongly punctate, dorsal series hardly visible. L. ·13—·14 inch.

Middle States.

H. vilis. Lec. Ann. Lyc. v., 208.—Ovate, rather depressed, sub-parallel, rufo-testaceous, beneath black: thorax short, disc nearly impunctate, sides straight, rather strongly margined; elytra almost glabrous, very finely and sparingly punctulate; underside sparingly punctate. L. ·12 inch.

California, Oregon.

J.—*Above glabrous, elongate, extremely, minutely and sparingly punctulate.*

H. concinnus, Lec. Pr. Acad., 1855, p. 297, 55; *pulcher*, Lec. l. c. n. 56.

Very distinct by the glabrous apparently impunctate surface. *H. pulcher* is not specifically distinct. Canada. Illinois, Nebraska.

K.—*Glabrous, elongate, antennæ of ♂ thickened in the middle.*

H. conoideus, Lec. Lake Sup., p. 216.—Elongate, wedge-shaped, unequally and sparingly punctate, beneath nearly smooth. L. ·2 inch.

Lake Superior, Canada, Vancouver.

H. difformis, Lec. Pr. Acad., 1855, p. 298.

Larger than preceding and equally, though still, sparingly punctate. Georgia, Boston. (Harris.)

H. aulicus, Aubé, Spec. vi., 572.—Alutaceous, brow, head, thorax and two interrupted fasciæ on the elytra reddish-orange. L. ·17 inch.

Tennessee. Distinct from any *Hydroporus* that I am acquainted with by the distinct groove on the anterior portion of the metasternum.

L.—*Slightly pubescent, very deeply and sparingly punctate, elytra with two smooth longitudinal spaces.*

H. striatopunctatus, Mels. Pr. Acad. ii., 28.—Very distinct by the peculiar sculpture; it is rufescent and deeply punctate beneath; above black with yellow markings. L. ·13 inch.

Middle States.

Tribe 3.—*Noterini.*

HYDROCANTHUS, Say, Tr. Am. Phil. ii., 105. (Type *iricolor.*)

Labial palpi with the last joint securiform, very large; anterior tibiæ with a strong spur; thorax margined; prosternum flat, broad, truncate behind; metasternum short, laciniæ triangular, episterna reaching the coxæ; posterior femora short, apical margin strongly ciliated, tibiæ short, smooth, claws equal.

H. iricolor, Say, l. c., p. 105.—Ovate, convex, attenuate behind, rufo-testaceous; elytra piceous; the three dorsal series of punctures evident, irregular. L. ·16—·20 inch.

Pennsylvania, Georgia, Louisiana. I have only seen one species from the United States; Say's *H. atricolor* was described from Mexico, and probably equals *H. nigrinus*, Aubé. The North American species is also noted from the West Indies and Senegal!

SUPHIS, Aubé, Spec. vi., p. 412. (Type *cimicoides.*)

Very near to *Hydrocanthus*, but maxillary palpi with the apex bifid.

S. bicolor. (Say) Tr. Am. Phil. iv., 447 (1834).—Ovate, convex, rufo-testaceous; elytra black, coarsely punctate, the dorsal series visible. L. ·10 inch.

Georgia, Pennsylvania, Florida.

S. lineatus. Horn, Tr. Am. Ent. Soc. iii., p. 329.—Ovate, convex, yellowish testaceous, shining; elytra each with four vitta and a small humeral line black; the sutural vitta common, the second from the margin abbreviated beyond the middle; punctuation of elytra sparse, unequal, the large punctures evident. L. ·12 inch.

Cape St. Lucas. (Horn.)

S. puncticollis. sp. n.—Ovate, convex, testaceous, shining; elytra piceous; thorax and elytra coarsely and tolerably closely punctate. L. ·12 inch.

(Leconte.)

COLPIUS, Lec. Class., p. 40. (Type *inflatus.*)

Differs from *Saphis* by the globose form and concave prosternum.

This genus appears to me very near *Saphis*, the type of which is a globose and similarly marked species (*S. cimicoides*), but which I have not seen. If these two were shown to be congeneric, the species above under *Saphis* might receive the name *Saphisellus.*

C. inflatus. Lec. New Sp., p. 22, 70.—Globose, acuminate behind, black, opaque, closely and very minutely punctulate, also thickly and coarsely punctate; upper surface obscurely variegated with red. L. ·14 inch.

Louisiana, Florida, New York (?).

Tribe 4.—*Agabinini.*

AGABINUS. g. n. (Type *glabrellus.*)

Regularly ovate, thorax margined, prosternum carinate, metasternum emarginate, short, broadly rounded at apex, suture hardly visible, lacinia sub-triangular, episterna hardly reaching the coxæ; coxal processes parallel, margins raised, straight, apex obliquely truncate within.

♂, four anterior tarsi with two joints dilated.

This genus is allied, by the form of the coxal process, to *Noterus*, but the male tarsi are different and the side pieces of the mesothorax are distinct.

A. glabrellus, Mots. Bull. Mosc., 1859, p. 171; *morulus,* Lec. Proc. Phil. (1861) p. 340, 11.—Ovate, pointed before and behind, shining black, convex: thorax with the sides straight; elytra extremely finely punctulate, the dorsal lines of punctures hardly visible; body beneath black, hardly strigulose; anterior tibiæ unarmed, posterior tibiæ punctate, spurs short. L. ·22 inch.

California. (Leconte, Horn.)

Tribe 5.—*Dytiscini.*

Thorax with the sides not margined, one posterior claw.....**Cybister.**
Thorax not margined, posterior claws unequal.
Scutellum none.....**Laccophilus.**
Laciniæ linear, episterna hardly reaching the coxæ.....**Agabetes.**
Laciniæ linear, dilated at apex.
Intermediate ♂ tarsi simple.
Coxæ punctate.....**Acilius.**
Coxæ smooth.....**Thermonectes.**
Intermediate tarsi dilated.....**Graphoderes.**
Laciniæ triangular.
Surface smooth or finely punctulate.....**Hydaticus.**
Surface areolate.....**Scutopterus.**
Surface transversly aciculate.
♂ tarsi with discs beneath.....**Colymbetes.**
♂ tarsi spongy beneath.....**Cymatopterus.**
Thorax not margined, posterior claws equal.....**Dytiscus.**
Thorax margined, claws unequal.
Intermediate ♂ claws unequal, laciniæ triangular.....**Rhantus.**
Anal segment carinate in ♂.....**Hybius.**
Prosternum sulcate, laciniæ linear.....**Matus.**
Thorax margined, claws equal.
Laciniæ linear.
Palpi emarginate, episterna not reaching the coxæ.....**Coptotomus.**
Elytra striate, episterna not reaching the coxæ.....**Copelatus.**
Elytra convex, very finely sculptured.....**Hybiosoma.**
Antennæ of male clavate.....**Agabus.**
Laciniæ sub-triangular.
Thorax narrowed in front.....**Gaurodytes.**
Thorax narrowed behind, legs long and narrow.....**Anisomera.**

CYBISTER. Curt, Brit. Ent. (Type *Roeselii.*)

Posterior tarsi with one claw only, two anterior tarsi in the male forming a patella with equal rows of small cupulæ, intermediate tarsi compressed, claws unequal; metasternal laciniæ abruptly curved, narrow, linear, dilated at the apex, not reaching the margin; posterior femora with apical angle not ciliate, tibiæ short, apical margin deeply sinuate, tarsi elongate, last joint much larger than the fourth, coxal plates widely divergent at the base, not reaching the metasternum.

The stridulating organs in this genus have hitherto escaped notice and are confined to the male sex; they consist of 3–5 deep ridges in the hollow behind the posterior coxæ, and are rubbed by a ridge on the underside of the femora.

C. fimbriolatus, Say, Am. Trans. ii., p. 91.—Ovate, above brown with a faint green shade; thorax and elytra with a broad yellow margin, the latter

varied with piceous towards the apex; underside pitchy red, four anterior legs and spots at the sides of the 3--6th segment yellow. L. 1·20 inch.

♀, thorax and elytra finely strigose, suture more or less broadly smooth.

♂, stridulating plate with four distinct ridges.

Pennsylvania, Louisiana, Kansas, Georgia.

C. ellipticus, Lec. Ann. Lyc. v., p, 202.—Slightly obovate, olive-green above, rufous below; sides of thorax and elytra broadly, base of thorax narrowly, yellow; dorsal series of punctures well marked. L. 1·18 inch.

♂, stridulating plate with 3--4 short rugæ; ♀, longitudinally strigose, suture smooth.

California. (Leconte.)

C. explanatus, Lec. Ann. Lyc. v., p. 202.—Extremely near *C. ellipticus;* but the females are generally smooth, and the elytral margin is narrowed at the apex, the stridulating plate has five well marked rugæ. L. 1·18 inch.

California.

C. Olivieri, Crotch; *costalis* ‡ Ol. Ent. iii., 40, p. 9. (nec. Fabr. 1775).—Very near *C. fimbriolatus,* but smaller, with the thoracic and elytral margin narrower, the elytral vitta leaves the margin gradually and is attenuated at about three-fourths. L. 1·10 inch.

♂, stridulating plate with three rugæ. ♀, elytra smooth.

Florida. (Leconte.)

LACCOPHILUS, Leach. Zool. Misc., p. 69. (Type *minutus.*)

Scutellum not visible, thorax not margined, prosternum carinate, metasternum emarginate in front, terminating in a rounded point, and slightly sulcate, laciniæ linear, strongly curved, episterna reaching the coxæ; coxal process hardly bilobed, the raised margins converge in front and join the metasternum just before its apex; posterior femora not punctate at apex, tibiæ short, claws unequal.

♂.—Four anterior tarsi dilated, clothed with spongy hairs beneath, anal segment carinate, coxal plates with a ridge of fine lines starting from the apex of the metasternum, and forming a stridulating organ by means of the posterior femora.

L. maculosus, Germ. Ins. Spec. Nov., p. 30.—Ovate, elytra obliquely truncate at the apex; head, thorax, legs and under surface rufo-testaceous; elytra very finely reticulate, the first dorsal series visible, the margin greenish-white, with four irregular transverse prolongations (one between the callus, one in the middle, one at two thirds and one sub-apical), margined with black, a narrow sutural line extending to the middle reddish, the base with three irregular greenish-white marks bordered with black, the disc greenish-yellow irrorated with black. L. ·24 inch.

♂, stridulating plate with rather coarse, closely approximating striæ.

Georgia, Pennsylvania, Lake Superior.

L. fasciatus, Aubé, Spec. vi., p. 423.—Ovate, head, thorax, legs and under surface testaceous; elytra greenish-yellow, slightly varied with brown, with a broad common black fascia behind the middle; elytra rounded at the apex. L. ·20 inch.

♂, stridulating plate with coarse visible striæ.

Georgia, Pennsylvania, Indian Territory, California.

The markings on the elytra, though faint, are an exact reproduction of those of *L. maculosus*.

L. proximus, Say, Tr. Am. Phil. ii., p. 201.—Ovate, pallid; elytra with the sub-humeral vitta of *L. maculosus*, the other markings confused, underside testaceous. L. ·20 inch.

♂, stridulating plate visibly striate.

Nebraska, Iowa, Texas, Florida, Illinois, Canada.

L. atristernalis, sp. n.—Rather narrower than *L. maculosus*, elytra obliquely truncate, head, thorax and legs pale fulvous; elytra brownish, unicolorous; metasternum black, venter pitchy. L. ·23 inch.

♂, stridulating plate finely but evenly striate.

California. (Horn.)

L. decipiens, Lec. Ann. Lyc. v., 205; *truncatus*, Mannh. B. M. (1853), 3, p. 160; *californicus*, Motsch. B. M. (1859), 3, p. 172.—Very near *L. maculosus*, but paler, margin of the elytra not pale (the triangular spot, however, similar, but not margined with black), disc more uniformly irrorated. L. ·24 inch.

♂, stridulating plate with fine rather distant striæ.

California, Oregon, Sitkha.

L. pictus, Lap. Et. Ent., p. 104; Horn, Tr. Am. Ent. Soc. iii., p. 330.—Again like *L. maculosus*, but vertex and elytra (with the epipleura) black; the latter with a sub-marginal vitta (from the callus to the middle), and each with about eight pale white spots. L. ·24 inch.

♂, stridulating plate with fine striæ, five in number.

Lower California, Texas. (Horn.)

L. quadrilineatus, Horn, Tr. Ent. Soc. iii., 330.—Similar to *L. maculosus*, but elytra rounded, color paler (as in *decipiens*); elytra yellowish-white, with four black linear vittæ at base, coalescing at the middle into an irregular black patch reaching the margin at two-thirds. L. ·24 inch.

♂, stridulating plate hardly aciculate.

Texas, Colorado. (Horn, Leconte.)

L. undatus, Aubé, Spec. vi, p. 435.—Narrowly oval; head, thorax, legs and underside red; elytra black, margin testaceous, a basal fascia (extremely irregular, enclosing a spot on the callus), a spot on the margin about the middle, a sub-apical fascia, and the apex whitish. L. ·19 inch.

Pennsylvania; ♂ unknown.

L. gentilis, Lec. New Sp., p. 23.—Narrower and more convex, rufo-testaceous; abdomen beneath pitchy; elytra brown with a basal fascia (extremely

much abbreviated), a medial spot and a sub-apical fascia (broken up in spots) yellowish. L. ·16 inch.

♂, stridulating plate not visibly striate.

Louisiana. (Leconte.)

AGABETES. g. n. (Type *acuductus.*)

Head depressed, thorax very short, sides not margined, prosternal process with an acute carina, laciniæ of the metasternum linear, angulate, posterior femora not ciliated at the apex, tibial spurs equal, last joint of the tarsus shorter than the preceding, claws small, unequal; episterna not reaching the coxæ, coxal processes rounded, divergent, their margins anteriorly parallel, joining the metasternum just before the apex.

A. acuductus. Harris, N. E. F. (1828), p. 124; *rugulosus*, Aubé, Spec. vi., 362.—♀.—Broad, depressed, truncate in front, opaque, pitchy red, above darker; head deflexed, very broad, thorax extremely short, sides rounded, anterior angles produced, posterior rectangular, broadly rufous; elytra closely covered with minute, short, rather deeply impressed longitudinal striæ; body beneath shining, strigulose. L. ·27 inch.

♂, anterior tarsal claws very long, impressed, anal segment deeply impressed on either side [sec. Aubé].

Pennsylvania, Canada. (Leconte, Horn.)

ACILIUS. Leach, Zool. Misc. iii., p. 69. (Type *sulcatus.*)

Slightly obovate, prosternum with an oval process, metasternum with a quadrangular emargination, narrow, acute, laciniæ linear, dilated at the apex; episterna irregular, reaching the coxal plates, which are thickly punctate; femora with the apical angle simple; anterior tarsi of the male with a broad patella, having one large and two small discs beneath, intermediate tarsi simple, posterior claws unequal.

The sulci are much less hairy than in the European species.

A. semisulcatus, Aubé, Spec., p. 132, 4.—Obovate, fulvous, head behind and an M-like mark on the vertex black; thorax transverse, fulvous, punctate, sides straight, anterior and posterior angles acute, disc with two transverse black lines, the anterior one largest and produced posteriorly at each end; elytra thickly and closely punctate, more obsoletely so towards the margin, fulvous, closely irrorated with black dots, with a sub-apical yellow fascia; prosternum and legs yellow, posterior femora slightly suffused with black at the base, metasternum black, very finely punctate, episterna thickly punctate, ventral segments punctate, each with a lateral spot and the apical margin fulvous L. ·50—·56 inch.

♀, with four deep pubescent furrows on the elytra, the internal one shortest, the middle ones equal, reaching nearly to the base.

Pennsylvania, Kansas, Illinois.

Var. **simplex**, Lec. Ann. Lyc. v., p. 202.—Posterior femora piceous, knees yellow; female with the elytra smooth.

San Diego. (Leconte.)

Var. **oregonensis.**—Elytra paler, more thinly irrorated with black, fascia paler and more distinct, posterior femora pale.

Oregon. (Horn.)

Var. **latiusculus**, Lec. Pac. R. R., p. 34.—♀.—Testaceous beneath, sulci as in type.

Var. **abbreviatus**, Aubé, Spec., p. 134.—♂ ♀.—Larger, femora testaceous, sulci in the female almost reaching the base.

Russian America (Horn). Oregon (Leconte.)

A. mediatus, (Say) Tr. Am. Phil. ii., p. 33.—Allied to *A. semisulcatus*, but smaller, narrower, not enlarged behind, less thickly punctate beneath, posterior femora black (knees testaceous), sub-apical fascia more clearly defined. L. ·48 inch.

Nebraska, Pennsylvania, Georgia.

A. fraternus, Harris, N. E. F. vii., p. 156.—Closely allied to *A. semisulcatus*, but larger, the mark on the vertex is not defined, the thoracic lines are broader, the posterior femora almost entirely black; the sulci in the female are sub-equal and short.

Var.—Elytra smooth, punctate.

Pennsylvania, Massachusetts, Illinois.

THERMONECTES. Esch. Dej. Cat. (Type *ornaticollis.*)

Allied to *Acilius* in the sternal characters by its smooth surface and by the anterior tarsi of the male, which are patellate and clothed with one larger basal and numerous very small, equal, discs; the females are marked with deep short striæ.

Th. basilaris. (Harris) N. E. Farm., 1829, p. 8.—Convex, regularly ovate, dark testaceous, legs and antennæ paler, surface scarcely punctulate, black, head in front and a transverse line on the vertex fulvous; thorax with the sides broadly and a narrow discoidal transverse line fulvous; elytra with a sub-basal fascia, the external margin and some vague irrorations also fulvous. L. ·3 — ·40 inch.

Pennsylvania, Canada, Georgia, Texas.

Var. **intermedius.**—Thorax without the medial line, elytra with a humeral vitta and a mere trace of the basal fascia; under surface rufo-testaceous.

California. (Horn.)

Var. **lutecinctus**, Lec. Ann. Lyc. v., p. 203.—Similar to the type, but the elytral margin broader and more distinct.

Th. ornaticollis, Aubé, Spec. vi., p. 140, 9.—Ovate, sub-depressed, rufo-testaceous beneath, above fulvous; head colored as in *Acilius semisulcatus*, thorax with two transverse blue lines (the anterior very narrow, the posterior broad and biarcuate) and the base itself darker; elytra irrorated with small

black confluent dots, a black waved fascia at three-fourths is sometimes obsolete, sometimes well marked. L. ·50 inch.

♂, elytra strigulose at the base, thorax smooth.

Pennsylvania, Texas, Illinois, Kansas.

Var. **nigrofasciatus,** Aubé, l. c., 136, 6.—Rather larger, the posterior fascia distinct, the thorax strigulose in the females.

Arizona, Mexico.

The Texan specimens are intermediate between these two varieties.

Th. marmoratus, (Hope.) Anim. Kingd., p. 284, t. 32, f. 1 (1832).—Ovate, sub-convex, beneath rufo-testaceous, four anterior legs yellow; above black, head with the clypeus and a transverse line between the eyes yellow; thorax with the sides and a transverse line (interrupted in the middle) also yellow; elytra variable, the most developed specimens have the margin yellow, five yellow spots near the suture (the middle one largest) four joined to the margin and two small additional spots in the basal third also yellow. L. ·50 inch.

♀, elytra strigulose at the base, thorax smooth.

Arizona, Oregon (Mexico).

The elytral markings are very variable in extent; Aubé appears to have placed this insect in *Hydaticus*, but erroneously.

GRAPHODERES. Esch. Dej, Cat. p. 61. (Type *cinereus.*)

Allied to *Acilius* by the form of the metasternum, but with the anterior male tarsi as in *Thermonectes*, and the intermediate tarsi dilated, clothed with two rows of discs; the females have no peculiar elytral sculpture.

G. cinereus, (Linn.) Fauna Suec. No. 771; *fascicollis.* (Harris) N. E. F. vii., 156.—Slightly obovate, broad, beneath rufo-testaceous, sub-rugulose; head fulvous, occiput and M-like mark black; thorax fulvous, anterior and posterior margins black; elytra scarcely punctulate, black margined and thickly irrorated with yellow. L. ·50 inch.

Pennsylvania, New York. Aubé identified this with *G. zonatus*, but it does not appear to differ from European specimens of *H. cinereus.*

G. liberus, (Say) J. Phil. v., p. 160.—Slighty obovate, testaceous, beneath rufous; front of head sides of thorax, margins and epipleuræ of elytra yellowish: elytra black thickly irrorated with yellow. L. ·46 inch.

Pennsylvania, New York.

HYDATICUS, Leach, Zool. Misc. iii., 69. (Type *transversalis.*)

Convex, regularly oval, thorax not margined, prosternum with a rather broad oval dilatation, metasternum broad, laciniæ suddenly deflexed, the apical portion linear, not dilated, episterna reaching the coxal plates; posterior femora with the apical angle simple, claws unequal.

♂ anterior tarsi patellate, discs numerous, sub-equal, intermediate tarsi broadly dilated, with four rows of discs.

H. stagnalis. (Fab.) Mant. i., 191, 22.—Regularly ovate, piceous, head in front, prosternum and four anterior legs rufous; thorax rufous with a transverse basal fascia (not reaching the sides) black; elytra with the margin broadly fulvous (irrorated with black towards the apex), and a sub-basal fascia from which go four or five longitudinal lines, also fulvous; upper surface very minutely closely punctulate, and also with a sparse more visible punctuation; the three dorsal series visible. L. ·50 inch.

Illinois.

Var. *a*.—Elytra with the margin and fascia alone fulvous.

Var. *b*.—Elytra with the margin only fulvous.

Var. ♀.—Base of elytra and thorax deeply reticulate strigose.

The variety *b* resembles *H. transversalis* in coloring, but in that species the basal margin of thorax is convex in front, in this it is straight.

H. piceus, Lec. New Spec., p. 33.—Closely allied to *H. stagnalis*, but rufo-piceous above, the sides of the thorax and margins of elytra gradually rufo-testaceous. L. ·50 inch.

Pennsylvania, Illinois.

H. bimarginatus. Say. Tr. Am. Phil. iv., 442; *fulvicollis*, Aubé, Spec. vii., 184, 19; *cinctipennis*. Aubé, Spec. vi., 191, 24—Allied to *H. stagnalis*, but smaller, more parallel, the minute punctuation rather more visible, the basal band of the thorax much less developed, the elytra with a yellow humeral vitta, sharply recurved at the base, not touching the margin, acuminate behind the middle; the margin towards the apex rufous. L. ·48 inch.

Pennsylvania, Georgia, Florida, Louisiana.

SCUTOPTERUS, Esch. Dej. Cat., p. 61. (Type *coriaceus*.)

Thorax not margined, sides rounded in front, posterior angles produced acute, prosternum pointed, metasternum grooved at base, broad. laciniæ triangular, episterna reaching the coxal plates; scutellum nearly smooth, posterior femora ciliated at the apical angle.

♀, four anterior tarsi patellate, clothed with small equal discs; the fourth joint sub-dilated, but without discs, claws simple, equal.

S. angustus, (Lec.) Lake Super., p. 213 [Agabus].—Oblong, dilated behind, black, upper surface finely reticulated, the areolæ large and distinct; the dorsal series of punctures are well marked at the base and obsolete before the apex; body beneath sub-strigose, prosternum sub-carinate, posterior femora finely strigulose, tibiæ coarsely punctate, spurs very unequal. L. ·13 inch.

Lake Superior, Kansas, Canada.

S. Hornii, sp. n.; *coriaceus,* ‡ Horn, Tr. Am. Ent. Soc. iii., 330.—Very closely allied to *S. angustus,* but much larger and with the dorsal punctures deeply impressed, extending to the apex. L. .68 inch.

Canada. (Horn.)

Horn identified this with *C. coriaceus* from the figure in Duval's *Genera*, which, though artistically perfect, is far from being scientifically accurate. The very peculiar intricate sculpture of the true *C. coriaceus* is well rendered in Aubé's *Iconographie.*

COLYMBETES, Clairv. Ent. Helv. ii., p. 188. (Type *striatus.*)

Thorax not margined, sides oblique, straight, femora ciliate at apical angle; metasternum not emarginate at base, broad, luciniæ triangular, episterna reaching the coxal plates; scutellum punctate, elytra transversely aciculate.

♂, four anterior tarsi sub-patelliform, joints 2–3 clothed with small equal discs, anal segment triangularly emarginate.

C. sculptilis, (Harris) N. E. F. (1829), p. 8; (Lec.) l. c. p. 522, 15; *densus,* (Lec.) Proc. Phil. (1859), p. 282; l. c. p. 522, 16.—Elongate oval, hardly dilated behind, beneath black, legs and margins of the segments rufous; thorax fulvous with a transverse black discoidal fascia; elytra finely transversely striate, margins yellow; legs testaceous. L. .63 inch.

♂ anterior tarsal claw sinuate; anal segment emarginate, ventral segments with a piliferous dot in middle.

Middle States, Canada, Nebraska, Idaho, Oregon, California.

C. strigatus, Lec. Ann. Lyc. v., p. 205; *strigosus,* Lec. l. c. p. 522, 13.—Extremely close to *C. sculptilis,* but larger, striæ slightly more distant and legs dark piceous.

California.

This is scarcely separable from *C. striatus* of Europe, except by the dark legs.

C. exaratus, Lec. l. c. 522, 14.—Allied to *C. sculptilis,* from which it differs only in the deeper sculpture of the thorax and deeper more approximate lines on the elytra, giving them a silky lustre. L. .62 inch.

Nebraska, Kansas, Oregon, Dacotah, Hudson's Bay.

All the specimens are ♀s and it may be a dimorphous form of *C. sculptilis; C. dolabratus* (Payk.) is recorded by Mannerheim (Bull. Mosc., 1853, p. 154), but probably this is only *C. exaratus.* A European specimen of *C. dolabratus* differs in being shorter and with the sides of the thorax more rounded

C. grœnlandicus, (Aubé) Spec. vi., p. 233; (Lec.) l. c. n. 18; *Drewseni,* (Lec.) l. c. n. 19.—Very close to *C. sculptilis,* but smaller, and much narrower; the sculpture on the thorax is much finer and more obsolete, the posterior tibiæ are less punctate. L. .56 inch.

♂ anterior external claw sinuate at base, anal segment deeply emarginate.

Greenland; also recorded from Lapland by Thomson.

C. Drewseni is founded on an abnormal specimen having the sides of the thorax rounded and sinuate before the anterior angles.

CYMATOPTERUS, Esch. Dej. Cat., p. 61. (Type *Paykulli.*)

Closely allied to *Colymbetes*, from which it differs by the male tarsi, which are less broadly dilated and have no discs beneath, the anal segment has a rounded emargination.

C. longulus, (Lec.) Proc. Phil. (1862), p. 522, 12.—Elongate ovate, hardly dilated behind, entirely black beneath; front of head and sides of thorax fulvous, elytra with the margins fulvous, disc darker, finely transversely strigose posterior femora strigulose, tibiæ with one deep row of punctures, and sparingly punctulate besides. L. ·68 inch.

Lake Superior, Kansas.

Apparently identical with *C. Paykullii* of Europe, but I have not seen the male.

C. obscuratus, (Mannh.) Bull. Mosc. (1853) iii., p. 154; (Lec.) l. c. p. 522, 10.—Very nearly allied to *C. longulus,* from which it is distinguished by its larger size and by the elytra dilated behind the middle. L. ·74 inch.

Kadjak.

The single ♀ before me is entirely opaque and has the sides of the thorax rounded and sinuate before the anterior angles which are acutely produced; this structure (not noticed by Mannerheim), I am inclined to consider abnormal.

The species is very nearly allied to *C. Paykullii*, of Europe, or *dahuria* of Siberia.

C. seminiger, (Lec.) l. c. p. 522, 11.—Resembling *C. longulus,* in form, black beneath, humeral angle of epipleuræ fulvous, thorax fulvous with a transverse median bar black; elytra as in *C. longulus.* L. ·74 inch.

♂ anterior external tarsal claw rounded at apex deeply sinuate at base.

Saskatchewan.

C. inæqualis, Horn, Tr. Am. Ent. Soc. iii., 330.—♀.—Extremely close to *C. seminiger*, from which it only differs by the entirely yellow epipleuræ of the elytra. L. ·74 inch.

In a warm spring near Susanville, California. (Horn.)

The four specimens before are all females and agree in having the elytra opaque for two-thirds their length, the apex shining.

DYTISCUS, Linn. 1735. (Type *marginalis.*)

This genus is equally represented in Europe, but the most northern European species (*D. lapponicus*) does not pass over. The most remarkable fact is the prevalence of smooth females; in England, of six

species only one has a smooth female, and in America only three species have sulcate female and these have also smooth forms. *D. hybridus* is a very curious Cybister-like form.

Claws equal in both sexes, four anterior tarsi in the male dilated into a patella with two large and numerous small cupulæ; thorax not margined, laciniæ of the metasternum broad, sub-triangular not reaching the margin, posterior tibial spurs unequal, apical angle of femora ciliate, coxal plates reaching the metasternum.

D. Harrisii, Kirby, Fauna, p. 76.—Broadly oval, almost dilated; fulvous yellow, above brown, thorax and elytra margined with yellow, the sub-apical fascia well marked, transverse; underside yellow; the sutures and margins of segments broadly black; coxal plates rounded. L. 1·50—1·55 inch.

Pennsylvania, Kansas, Lake Superior, Vancouvers. ♀, elytra smooth.

Closely allied to *D. latissimus*, but the elytra are less dilated at the margin and the females smooth. Thomson has made this the type of his genus *Dytiseus*, characterized by the hardly emarginate labrum; the other species form his genus *Macrodytes*.

D. latissimus, Fauna Suec. No. 768.—Very distinct by the broadly dilated elytra. Dr. Sharp writes me word that he has just had ♂ ♀ of this species sent him from Canada. I am inclined, however, to think that its occurence will prove to have been accidental.

D. confluens, Say, Am. Trans. iv., 440; *diffinis*, Lec. Lake Sup., p. 212.—Slightly obovate, fulvous, head, thorax and elytra brown shot with green; head with the clypeus and a triangular mark between the eyes fulvous; thorax transverse angles produced, acute, margin pretty broadly yellow and bordered with deeper punctures; elytra very sparingly punctulate, with three rows of deeper punctures, the margin rather broadly yellowish, acuminate before the apex, and emitting an irregular sub-apical fascia; underside with the margins of the segments and apex of metasternum more or less black; coxal plates acuminate. L. 1·20—1·40 inch.

♀ elytra sulcate to beyond the middle; the external costa united with the seventh.

♀ var., elytra smooth.

Kansas, Lake Superior, Russian America.

D. parvulus (Motsch. Et. Ent., 1852, p. 77) is not distinct from this species in my opinion, from which it differs only in its smaller size. It resembles *D. marginalis* precisely in external form and coloring, but the coxal plates are formed as in *D. circumcinctus*.

D. anxius, Mannh. Bull. Mosc.—Closely allied to *D. confluens*, but regularly ovate, and the elytra are brown with striæ of closely approximated black dots (not impressed); the underside is entirely pale. L. 1·35 inch.

Oregon, Russian America. ♀, elytra smooth.

This species has the elytra colored as in *D. lapponicus*, but the coxal plates are similar to those of *D. circumcinctus*.

D. marginicollis, Lec. Proc. Bost. i., 201.—Regularly ovate, rich fulvous yellow; thorax short, black, sides broadly margined with orange, the basal margin markedly broader in the middle; scutellum fulvous; elytra fulvous, thickly irrorated with brown; underside with the apex of the metasternum and the ventral segments broadly shaded with black; coxal plates obtusely pointed. L. 1·25 inch.

California, Kansas. ♀ elytra smooth.

The coxal plates are somewhat similar to those of *D. marginials*. In some specimens the elytra are entirely black, with a yellow margin.

D. Cordieri, Aubé. Spec. vi., p. 10?: *sublimbatus*, Lec. Pac. R. R., p. 34.—Elongate ovate, fulvous, head, thorax and elytra brown, margined with yellow; the thorax more narrowly margined, especially at the base; underside uniformly yellow. L. 1·15—1·20.

♀ elytra sulcate, the sulci abruptly terminated a little beyond the middle, or smooth.

Oregon, Kansas, Vancouver Island, Minnesota, Ohio River. Coxal plates rounded as in *D. dimidiatus*.

D. verticalis, Say, Am. Trans. ii., 92.—Fulvous below spotted with black, above brown margined with yellow; the thorax is only margined on the sides; the elytra are ovate with the dorsal row of punctures well marked; the subapical fascia oblique and rather obsolete. L. 1·30—1·35 inch.

Pennsylvania, Lake Superior.

Closely allied to *D. dimidiatus*, but more convex, less narrowed in front, and the coxal plates more decidedly rounded.

D. fasciventris, Say, Long's Exp. ii., 270.—Closely allied to *D. verticalis* but much smaller, metasternum and ventral segments broadly bordered with black; females often sulcate the sulci reaching beyond the middle, external ones not confluent. L. 1·25 inch.

Pennsylvania, Lake Superior. Allied to *D. punctulatus* but not black beneath.

D. hybridus, Aubé. Spec. p. 116.—Regularly ovate, elytra finely alutaceous; thorax with the sides alone yellow, much shorter than in the preceding species, and with the sides regular, and not flattened out; elytral pale margin equally broad to the apex, underside fulvous, coxal plates rounded. L. 1·8 inch.

Pennsylvania, Kansas, Illinois.

RHANTUS, Esch. Dej. Cat., p. 62. (Type *collaris.*)

Thorax with the sides margined: metasternum emarginate, broad, laciniæ sub-triangular, narrowed towards the apex, episterna reaching the coxæ; posterior femora simple at the apex, last joint of posterior tarsi as short as the fourth, claws unequal.

♂.—Four anterior tarsi compressed, dilated, beneath with four transverse rows of discs, claws generally unequal.

A.—*Intermediate claws of male unequal.*

Rh. binotatus, (Harris), N. E. F. vii., 164; (Lec.) Proc. Phil. (1862), p. 523, 20.—Ovate, rather convex, black, front of head, prosternum, legs and sides of ventral segments fulvous; thorax fulvous with a discoidal black fascia divided by a narrow line in the centre, sides straight; elytra finely granulate, margin narrowly fulvous, disc thickly irrorated with black; posterior tibiæ with the base punctate and a row of deeper punctures reaching the apex. L. ·47 inch.

♂ anterior claws sub-equal, external sinuate, rather elongate.

Middle States and Canada, Mexico (Aubé). Nevada, New Mexico, Hudson's Bay, Lake Superior, Kansas.

Allied to *Rh. puberosus* of Europe, but ♂ claws subequal.

Rh. divisus, (Aubé) Spec., p. 248; (Lec.) l. c., n. 21.—Closely allied to *C. binotatus*, prosternum black with the carina yellow; posterior legs nearly black, tibiæ clearly punctate.

♂ anterior claws equal, sinuate at the base, intermediate very unequal.

Rh. anisonychus, sp. n.—Externally resembling *C. binotatus*. prosternum and base of the femora black, middle anterior legs before nearly, the tibiæ short, deeply excavate for the tarsi, the claw joint elongate, the external claw twice the length of the other.

Rh. flavogriseus, sp. n.—Again allied to *C. binotatus* but more elongate, narrower, the discal spots on the thorax transversely quadrate, beneath black, prosternal carina pale, femora black.

♂ anterior claws elongate sub-equal, sinuate, intermediate internal claw rudimentary.

Rh. bistriatus, (Berg.) Nom. i., p. 42, t. 8, f. 5; *agilis* ‡ (Aubé.) Spec., p. 254; *saturellus,* (Harris) N. F. vii. p. 164.—Rather shortly ovate, black, head in front and on the vertex fulvous; thorax fulvous, bordered with black before and behind, elytra irrorated with black; prosternum and four anterior legs pale; posterior tibiæ smooth with three deep punctures towards the base. L. ·40 inch.

♂ anterior tarsi dilated, claws equal, very elongate, sub-sinuate; intermediate claws unequal, the external one very broad, compressed.

Hudson's Bay, Lake Superior, Kansas, Slave Lake.

Rh. notatus. (Fabr.) Sp. Ins. i., p. 296, 26; Lec. l. c.—Elongate ovate, light fulvous-yellow; head black, front and two dots on the vertex yellow; metasternum black; thorax with a single discoidal medial patch black; elytra irrorated with black, and two narrow yellow lines (representing the dorsal punctures); tibiæ obsoletely punctulate, with an abbreviated row of deep punctures. L. ·41 inch.

♂ anterior tarsi broadly dilated, external claw extremely elongate and broad; intermediate claws unequal.

Kansas. (Leconte).

Rh. tostus. (Lec.) Proc. Acad. (1866), p. 366.—Ovate, fulvous yellow, head black, front fulvous; elytra thickly irrorated with black, suture narrowly paler. L. ·41 inch.

♂ anterior tarsi broadly dilated, claws visibly unequal, extremely elongate and sub-sinuate.

Missouri. (Leconte).

Very close to *C. exoletus* Forst. but with the head black, (only the clypeus being yellow) and the male claws slightly unequal.

Rh. sinuatus, Lec. l. c. p. 522, 8.—Ovate, sub-depressed, black, antennæ, legs, sides of thorax and elytra rufo-piceous; thorax with the base deeply sinuate, so that the posterior angles are produced and acuminate; the surface finely granulate, the inner row of dorsal punctures tolerably well marked; posterior tibiæ smooth with a single row of deep punctures. L. ·40 inch.

♂.—Intermediate claws unequal, anterior sub-equal, the external sinuate.

Dacotah, Illinois. Evidently closely allied to *C. Grapii.*

B.—*Intermediate claws of male equal.*

Rh. atricolor, Aubé, Sp., p. 265.—Broadly oval, black, not very shining, head with the front and two spots on the vertex fulvous entirely covered with fine irregular anastomosing striolæ, not forming areolæ; thorax short, sides nearly straight, hardly margined, anterior angles produced, base sub-sinuate; elytra with the three dorsal striæ regular, well marked, punctures distinct; under surface nearly smooth, prosternum carinate, posterior femora smooth, tibiæ with one accessory row of large punctures. L. ·60 inch.

♂ four anterior claws equal.

New Mexico, (Leconte, Horn). Mexico, (Aubé).

Rh. calidus, (Fabr.) Ent. Syst. i., 193; Lec. l. c. n. 23.—Ovate, sub-convex, above dark brown, shining; sides of thorax paler; elytra with a sub-basal transverse line, three narrow vittæ on each, and the lateral margin pale. L. ·50 inch.

♂ four anterior claws equal.

Georgia, (Leconte).

Rhantus? consimilis, Mots. Bull. Mosc. (1859), p. 47, 50.—Elongato ovatus, depressiusculus, subnitidus, supra subtilissime rugulosus, nigropiceus, ore, palpis, antennis, thoracis, elytrorumque margine dilutioribus; capite subtriangulare, antice oblique bi-impresso; thorace transverso, antice angustato, basi arcuato, lateribus marginatis, subreflexis, angulis anticis prominulis, pos-

ticis acutis, subsinuatis; scutello fere læve; elytris elongato-ovatis postice subdilatatis, serie una punctorum distincta, lateribus latissime reticulatis, subopacis (♀); trochanteribus obtusis. L. 4½ lin.

San Francisco.

[Allied to *C. sinuatus*, but the sides of the elytra are broadly reticulate.]

ILYBIUS, Er. Gen. Dyt., p. 34. (Type *ater*.)

Convex, thorax margined, prosternum acute, metasternum emarginate, laciniæ sub-triangular, episterna hardly reaching the coxal plates; sculpture very close. ♂ four anterior tarsi compressed, thickly fringed beneath, claws rarely dilate, equal, anal segment strigose, with a medial carina. ♀ anal segment convex, emarginate.

The sexual characters and general facies render this genus easily distinguishable; the species go into two groups by the sculpture of the posterior tibiæ; to the first belongs (besides *I. ater*), only *I. subæneus* from Europe.

A.—*Posterior tibiæ punctate.*

I. ater, DeG. Mém. iv., 401, 8; *ungularis*, Lec. Proc. Phil. (1862), p. 521.—Convex, rufo-piceous, above bronzed and reddish-brown, the dorsal punctures hardly visible, thorax broadly margined. L. ·52 inch.

♂ anal segment carinate, sub-strigose, anterior claws elongate, sinuate.

Pennsylvania. (Leconte.)

I. confusus, Aubé, Spec., p. 280, 7; *pleuriticus*, Lec. Lake Sup., p. 213.—Smaller than *I. ungularis* and more brassy, the sculpture is also more open; thorax finely margined, sides red; elytra with the margin broadly red from the shoulders to beyond the middle; tibiæ less coarsely punctate; laciniæ of the metasternum more narrowed. L. ·44 inch.

Lake Superior, Pennsylvania. (Leconte.)

I. suffusus, sp. n.—Closely resembling the two preceding, but more allied to *I. pleuriticus* by the less coarsely punctate tibiæ; color brassy, sculpture very fine, the whole margin of the elytra broadly and irregularly ferruginous, hiding the usual pale spots. L. ·44 inch.

Indian Territory. (Horn.)

I. viridiæneus, sp. n.—Closely allied to *I. pleuriticus*, but entirely greenish-brassy above, finely sculptured and less convex. L. ·43 inch.

♂ anal segment coarsely strigose, concealing the usual carina.

Kansas, (Leconte). Hudson's Bay, (Horn).

I. picipes, Kirby, Faun. B. A. iv., p. 71, t. 5, f. 6, a.—Smaller, more elongate, less convex, above brassy, finely sculptured, the dorsal punctures more visible; the pale elytral spots often obsolete. L. ·38 inch.

♂ anal segment sub-strigose, claws simple.

Kansas, Lake Superior, Labrador.

B.— *Tibiæ smooth, or only punctate at the base.*

I. quadrimaculatus, Aubé. Spèc. vi , p. 274.—Slightly bronzed above, not very convex, dorsal lines tolerably visible, uniformly oval, tibiæ punctate at the base. L. ·45 inch.

Oregon, Russian America.

I. biguttulus, (Germ.) Ins. Sp. Nov.. p. 29.—Very closely resembling *I. 4-maculatus*, and hardly distinct; the tibiæ are nearly smooth, only two or three punctures being visible at the base, and it is decidedly smaller. L. ·40—·42 inch.

Var. laramæus, Lec. Col. Kans. (1859), p. 4.—Rather smaller than *I. biguttulus*, and with the sides of the thorax red.

Lake Superior, Pennsylvania, Georgia.

I. fraterculus, Lec. Proc. Phil. (1862), p 521.—♀.—Differs from *I. biguttulus* only by the slightly more brassy color, and the rufous margins to the elytra; the posterior pale spot is often obsolete. L. ·42 inch.

North Red River, (Leconte). Kansas, (Horn).

I. iguarus, Lec. Proc. Phil. (1862), p. 521.—Smaller, narrower and less convex than the other species, color red-brown (but immature); more resembling *I. picipes*, but more parallel. L. ·30 inch.

♂ anterior tarsal claw acutely dentate, anal segment acutely carinate.

Lake Superior. (Leconte.)

MATUS, Aubé, Spec. vi., p. 3 0. (Type *bicarinatus.*)

Thorax margined, prosternum deeply sulcate, metasternum broad, deeply emarginate in front, truncate behind, laciniæ linear, abruptly curved, episterna with the apical angle produced, bordering the coxal plates; posterior femora without apical punctures, claws unequal. ♂ anterior and intermediate tarsi dilated, citiate beneath.

M. bicarinatus, (Say) Tr. Am. Phil. ii., 98.—Elongate ovate, brownish-red, surface minutely punctulate, interstices alutaceous; thorax with the sides rounded, margined, anterior angles acute; elytra with the dorsal punctures faintly marked; under surface punctulate, posterior femora smooth, tibiæ with one row of deeper punctures.

COPTOTOMUS, Say, Tr. Am. Phil. iv., 443. (Type *serripalpus.*)

Palpi emarginate at the apex, prosternum with a high uniformly elevated carina, metasternum triangularly emarginate, sulcate behind, laciniæ curved linear, episterna not reaching the coxæ; coxal processes rounded, median line sulcate, margin elevated, divergent, not joining the metasternum; posterior femora smooth, angle not ciliated, tibial spurs subequal; last joint of tarsi equal to the fourth, claws equal.

C. serripalpus appears to be a Mexican species with the venter piceous.

C. interrogatus, (Fabr.) Syst. El. i., 267; *difficilis,* Lec. Ann. Lyc. v., 204, 1.—Ovate, sub-convex, head (vertex black), thorax (black in front and behind), antennæ, legs and underside red; elytra closely and minutely punctulate, pitch-brown irrorated with paler, an abbreviated sub-scutellar vitta, and the external margin irregularly yellow; body beneath punctulate. L. ·28 inch.

Pennsylvania, Georgia, Texas, Missouri, California.

The elytra are sometimes impressed with faint punctures all over.

C. longulus, Lec. Ann. Lyc. v., 204.—More elongate, narrower and rather paler, the larger impressed punctures more apparent, the pattern somewhat similar, the scutellar vitta smaller and narrower; metasternum clearly punctulate with deeper punctures intermixed, laciniæ dilated at the apex. ♂ surface opaque. L. ·32 inch.

Laramie, Nebraska, Colorado.

COPELATUS, Er. Gen. Dyt., p. 38. (Type *posticatus.*)

Claws equal in both sexes, prosternum with an acute carina in front, metasternum hardly emarginate, broad, obtuse behind, laciniæ short, linear, episterna not reaching the coxæ; posterior femora not ciliate at the apex; the external margin of the coxal process is reduced to a very fine line on the process, and is then closely approximated to the medial line before it diverges towards metasternal suture, which it does not reach. ♂ four anterior tarsi dilated and furnished with small equal discs beneath.

It appears to have escaped notice that *Agabus oblongus* of Europe [*Liopterus,* Aubé,] is evidently a *Copelatus,* and only differs in not having the elytra striate.

C. glyphicus, (Say) Tr. Am. Phil. ii., 99; 10-*striatus,* Aubé, Spec. vi., 379, 10; *punctulatus,* Aubé, l. c. 381, 11.—Ovate, sub-depressed, rufo-piceous, legs paler; head and thorax finely punctulate; elytra with ten impressed striæ in the posterior half; the external margin and apex with a few deeper punctures; body beneath sparsely strigose, posterior femora smooth. L. ·19—·24 inch.

Var.—♀ elytra punctulate.

Florida, Louisiana, Texas, Kansas, Pennsylvania, Canada.

C. Chevrolatii, Aubé, l. c. p. 389, 17.—Larger, elytra distinctly punctulate, the two striæ nearest the suture obliterated; posterior femora with a row of 7--8 impressed punctures. L. ·26 inch.

California, Texas, Arizona, Kansas, Lake Superior.

ILYBIOSOMA, g. n. (Type *regularis.*)

Resembles *Ilybius* in convex form, sculpture and the yellow lateral spots; laciniæ of the metasternum linear, strongly curved, episterna not reaching the coxæ; posterior tibiæ and tarsi very short, the first

joint shorter than the tibial spur, claws equal. ♂ four anterior tarsi compressed, narrowly dilated, claws simple.

This genus differs from *Ilybius* by the sexual characters, and from *Agabus* by the narrow laciniæ.

I. regularis, (Lec.) Ann. Lyc. v., 203.—Rather obovate, very convex, uniformly reddish-brown, above darker; thorax with the sides nearly straight, the margin rather broad but very faintly indicated; elytra thickly and closely rugulose; dorsal series visible, irregular, a well marked pale spot behind the middle; posterior femora short, punctulate, apical angle produced, acute, ciliate, tarsi very short, spurs long unequal, last joint equal to fourth; ♂ tarsal claws simple.

San Diego. (Leconte, Horn.)

Ilyobius oblongus, Mots. B. M., 1859, p. 48, seems to be a variety of this species in which the lateral spots are obsolete.

I? bifarius, (Kirby) Faun. B. A. iv., p. 71, pl. 5, f. 6.—Ovate, sub-convex, black, head in front and legs red; thorax rather short, sides a little rounded, rufescent, broadly margined; elytra shining covered with minute longitudinal striolæ which do not anastomose (after the middle these begin to slope towards the suture); prosternal process acutely carinate, posterior tibiæ smooth, spurs unequal, last joint of tarsi larger than fourth. ♂ anterior tarsal claws elongate, sinuate. ♀ surface opaque. L. ·27 inch.

Canada. (Horn, Leconte.)

This species will probably form a new genus, or possibly go in *Eriglenus* Th.; it agrees with *I. regularus* in the shape of the laciniæ.

AGABUS, Leach, Zool. Misc. iii., p. 69. (Type *serricornis.*)

Thorax margined, prosternum acutely carinate, metasternum emarginate, short, laciniæ linear, episterna not reaching the coxæ; claws equal. ♂ antennæ with the joints dilated, forming a club; four anterior tarsi dilated, with very small discs beneath.

A. clavatus, Lec. Col. Kansas, 1859, p. 4.—Elongate oval, rufo-testaceous, elytra darker; thorax with the sides straight, rather thickly margined; elytra very finely punctulate, the serial punctures visible and very confused; posterior tibiæ smooth (except the external row of deep punctures), ventral segments smooth, with a few scattered piliferous punctures. ♂ antennæ with the last six joints incrassate, flattened, the last three infuscate; anterior claws elongate. L. ·34 inch.

Kansas. (Leconte.)

GAURODYTES, Thoms. Skand. Col. ii., p. 57. (Type *gut atus.*)

Distinct from *Agabus* by the triangular laciniæ of the metasternum, and simple antennæ. It contains the greatest part of the Erichsonian

genus. He has established sections on the ciliation of the posterior tarsi in the ♂, a character very difficult to verify in dried specimens. The form of the anterior tarsi in the ♂ seems to afford some characters, but I have not been able to establish satisfactory sections.

Anterior claws compressed, elongate, or obtusely dentate in male.
Inner margin of tibiæ impunctate.
Elytra black, slightly bronzed with a lateral spot yellow.....**confertus.**
Elytra brown, more or less pale.
Male tarsi narrowly dilated, posterior legs black, sculpture very fine.
ovoideus.
Male tarsi broadly dilated..... **obsoletus.** **obliteratus.** **griseipennis.** **morosus.**
Inner margin of posterior tibia with a row of punctures.
Metasternum hardly emarginate.
Posterior tibiæ irregularly punctate, claws small and weak.
Black strigose.....**discus.**
Bronzed, sub-convex, granulate.....**lutosus.**
Shining black, with a yellow lateral spot.....**Walsinghami.**
Metasternum deeply emarginate.
Laciniæ of metasternum strongly narrowed, form broad, depressed.
brevicollis.
Laciniæ sub-triangular.
Elytra black or brassy black..... **seriatus.** **parallelus.** **intersectus.**
Elytra brownish, sub-opaque.
Elytra very finely granulate.....**infuscatus.**
Elytra coarsely reticulate.....**scapularis.**
Claws of male simple.
Inner margin of posterior tibiæ impunctate.
Claws very small and weak.....**punctatus.**
Elytra black, shining, smooth, with a yellow sub-apical vitta.
·40, broad in front, elytra finely granulate.....**stagninus.**
·30, ovate, elytra with large areolæ.....**obtusatus.**
Elytra brown, shining, nearly smooth..... **punctulatus.** **inscriptus.**
Elytra brown, recticulate, sub-opaque..... **strigulosus.** **fimbriatus.**
Inner margin of tibiæ with a row of deep punctures.
Posterior tibiæ irregularly punctate.....**tristis.**
Prosternal process depressed.....**arcticus.**
Prosternum convex sub-carinate.
Thorax finely margined, surface shining..... **hypomelas.** **gagates.**
Thorax with a broader margin, sub-opaque; elytra with a lateral yellow spot..... **lugens.** **suturalis.**

Anterior claw deformed..... .....**erythropterus.**
Anterior claw acutely dentate.
Elytra yellow with black vittæ.
Surface areolate, tibiæ with inner margin punctate.....**lineellus.**
Surface smooth, metasternum and coxæ black.....**disintegratus.**
Surface smooth, body beneath red; vittæ above broad, suffused.
tæniolatus.
Elytra pale brown, smooth..... .....**Lecontei.**
Elytra greenish-brassy, punctulate.....**æneolus.**
Elytra black.
Broad, sub-depressed, with a yellow apical vitta.. .....**semivittatus.**
Narrow, convex, with numerous irregular punctures...**semipunctatus.**

A.—*Anterior external claws in the male very elongate, broadly dilated.*

G. erythropterus, (Say) Tr. Am. Phil. ii., p. 95.—Rather broadly oval, sub-convex, opaque, black, legs, margins of ventral segments and elytra yellowish-brown; thorax with the sides rounded, margin rather explanate; elytra with the sides and humeral angle paler, closely reticulate, areolæ small, but visible, dorsal punctures obsolete; prosternal process acutely carinate, posterior femora strigose, tibiæ smooth, spurs shorter than first joint of tarsus, last joint longer than fourth. ♂ anterior external tarsal claw compressed and broadly dilated, internal one elongate and sinuate. L. ·37 inch.

Lake Superior, Pennsylvania. (Leconte, Horn.)

The posterior tibiæ have a few punctures on the inner margin in some examples.

B.—*Anterior external claw acutely dentate in male.*

G. tæniolatus, Harris, N. E. F. vii., 164.—Ovate, sub-convex, bright rufous; thorax with the anterior and posterior margins black, sides slightly rounded, posterior angles rectangular; elytra yellow with the suture and three vittæ (not quite reaching base or apex) are each black; the first vitta often confused with the sutural line, and the two outer vittæ coalesce at their apex; surface extremely finely alutaceous, dorsal punctures visible, confused; intermediate tarsi with the first joint equal to the three following; prosternal process acutely carinate, posterior femora and tibiæ finely punctulate. ♂ anterior tarsal claw dentate.

Pennsylvania. (Leconte.)

G. disintegratus, sp. nov.—Very near *A. tæniolatus*, but narrower, slightly smaller, the vittæ narrower, especially the outer one which is linear, and branched at the apex; metasternum black; first joint of intermediate tarsi slightly shorter. L. ·30 inch.

Kansas, Arizona, Pennsylvania, Nebraska, Canada. (Leconte, Horn.)

G. lineellus, Lec. Proc. Phil. (1861), p. 340.—Allied to *A. tæniolatus*, but thorax entirely red (possibly immature), elytra with four linear vittæ, surface with larger and easily visible reticulations. ♂ tarsal claws dentate.

California. (Leconte.)

The intermediate tarsi are short, the posterior tibiæ with 4--5 punctures on the inner margin.

G. semivittatus, Lec. Ann. Lyc. v., p. 204; *spilotus*, Lec. Col. Kansas, p. 5.—Ovate, rather broad, black, shining; thorax with the sides nearly straight, strongly margined; elytra extremely, finely and obsoletely punctulate, the dorsal series irregular, rather deeply impressed, confused towards the apex, with a sub-marginal vitta in the apical third (sometimes interrupted) yellow. ♂ anterior claw acutely dentate. L. ·35 inch.

♀ var? reticulation large and open, leaving areolæ precisely similar to those of *A. obtusatus*.

♀ var. elytra closely and roughly reticulate.

Kansas, Colorado River, Texas, Canada.

Intermediate tarsi with the first joint = second and third. Posterior tarsi with the first joint longer than second and third, fifth = fourth; posterior tibiæ punctate at the base.

G. Lecontei. sp. n.; *discolor*, ‖ Lec. Ann. Lyc. v., p. 204.—Ovate, black, legs and antennæ red; thorax with the sides rounded, finely margined, rufous, surface reticulate; elytra yellowish-brown, disc darker, minutely punctulate, surface alutaceous under a high power, dorsal punctures well marked, the accessory punctures serially arranged, and forming in all five rows; posterior femora strigulate, tibiæ smooth or very obsoletely punctulate. ♂ anterior tarsal claw with a large acute tooth, tarsi broadly dilated. L. ·30 inch.

California, Oregon. (Leconte, Horn.)

G. semipunctatus, Kirby, Faun. B. A. iv., 69.—Ovate, sides rather parallel, surface convex, shining, black; thorax with the sides hardly rounded, posterior angles almost obtuse; elytra extremely finely reticulate, the areolæ hardly visible, dorsal series well marked, with additional punctures inserted in the intervals; posterior tibiæ smooth, tarsi very short. ♂ anterior tarsal claw with an acute dent. L. ·24 inch.

Lake Superior, Canada, Missouri. (Leconte, Horn.) All the claws very short and weak.

G. æneolus, sp. n.—Ovate, rufescent, body beneath black, legs and coxal processes red; thorax and elytra shining, tinged with brassy-green; thorax with the sides slightly rounded, strongly margined; elytra finely punctulate and reticulate; the dorsal punctures small, confused towards the apex, epipleuræ rufescent. ♂ anterior claw with a well marked tooth. L. ·28 inch.

Pennsylvania, Newfoundland. (Leconte.)

Prosternal process sub-carinate, posterior femora and tibiæ punctulate.

G. confertus. Lec Proc. Phil. (1861), p. 340.—Ovate, rather blunt before and behind, black, legs rufescent, upper surface bronzed, elytra with a yellow spot beyond the middle; thorax rather broadly margined; elytra bronzed, closely punctulate and finely reticulate, dorsal series irregular but well marked; posterior coxæ obsoletely punctulate, finely aciculate, tibiæ smooth. ♂ anterior tarsi with the claws elongate, the external one obtusely dentate. L. ·13 inch.

Reyes, California. (Leconte.)

More bronzed than the other spotted species, and decidedly punctulate; metasternum hardly emarginate in front.

G. ovoideus. (Lec. MSS.) sp. n.—Ovate, convex, shining, black, antennæ, anterior legs and sides of elytra ferruginous; thorax with the sides slightly rounded, rather broadly margined, surface reticulate; elytra extremely finely alutaceous, dorsal punctures evidently irregular; prosternal process acutely carinate, posterior femora finely strigulose and obsoletely punctulate, tibiæ smooth. ♂ anterior tarsal claws elongate, simple. L. ·38 inch.

Kansas, Lake Superior. (Leconte.)

Distinct by the very fine sculpture and the black posterior legs.

G. obsoletus. Lec. J. Phil. iv. (1858), p. 15.—Ovate, rather convex, very shining, black, antennæ and four anterior legs rufous, posterior femora dark; thorax with the sides rounded, rather strongly margined and narrowly red, surface obsoletely reticulate; elytra almost smooth, dark red-brown (under a high power obsoletely reticulate), dorsal punctures evident, confused behind; posterior femora alutaceous, tibiæ with a short basal row of accessory punctures. ♂ tarsal claws elongate, sinuate, tarsi rather broadly dilatad. ♀ surface shining. L. ·30 inch.

San Diego. (Leconte.)

G. obliteratus. Lec. Col. Kansas, p. 5 (1858).—Ovate, slightly convex, shining, black; antennæ, tibiæ and tarsi rufous; thorax slightly bronzed, reticulate, sides rounded, finely margined, margin red; elytra rich yellowish-brown, disc hardly darker, surface fine and obsoletely reticulate, leaving unequal areolæ, dorsal series well marked, with numerous accessory punctures behind; prosternal process convex, sub-carinate behind, posterior femora and tibiæ smooth. ♂ anterior tarsal claws elongate sinuate, tarsi broadly dilated. L. ·31 inch.

Kansas. (Leconte.)

This has been united with *A. Lecontei* (*discolor*, Lec.), but erroneously.

G. griseipennis, Lec. Col. Kansas. 1859, p. 5.— ♀.— Elongate ovate, black, antennæ, legs and margins of ventral segments rufous; thorax with the sides straight, narrowly rufous, finely margined, surface coarsely aciculate; elytra bright yellowish-ferruginous, disc darker, surface coarsely and deeply reticulate strigose, dorsal punctures not visible; prosternal process convex, posterior femora strigose, tibiæ obsoletely punctulate. L. ·36 inch.

Kansas, Oregon. (Leconte.) Probably the female of *A. obliteratus*.

G. morosus. Lec. Ann. Lyc. v., p. 204.—Very like *A. obliteratus*, but narrower, less shining, and much darker; the elytra are very finely and confusedly reticulate; the female is rougher and without traces of the dorsal series of punctures. ♂ tarsal claws elongate, compressed, tarsi broadly dilated. L. ·28 inch.

San Francisco.

G. discors. Lec. Proc. Phil. (1861). p. 341.—Elongate oval, sub-opaque, black, legs rufescent; thorax faintly sculptured sides rounded, broadly margined, posterior angles obtuse; elytra longitudinally strigose, the striæ anastomosing; body beneath strigose, posterior coxæ strigose, tibiæ punctulate and finely transversely aciculate, the spurs shorter than the first joint of the tarsi, the last joint of the tarsus markedly longer than the fourth. ♂ anterior tarsal claws sinuate and elongate. ♂ surface opaque. L. ·40 inch.

Oregon, Vancouver's Island. (Leconte.)

Prosternal process with a very acute carina, claws very small.

G. lutosus. (Lec. MSS.) sp. n.—Ovate, convex, black, above bronzed; legs, epipleuræ and margins of ventral segments rufescent; thorax short, sides rounded, broadly margined, posterior angles obtuse; elytra sub opaque closely covered with short anastomosing striæ, dorsal series visible, confused behind; posterior femora sparsely punctulate, tibiæ punctate, tarsi with the last joint elongate. ♂ anterior tarsal claw obtusely dentate. L. ·40 inch.

Slave Lake, Kansas, Lake Superior. (Leconte.) Posterior claws extremely small.

G. Walsinghami. sp. n.—Closely resembling *A. confertus*, but with more acute prosternal carina, legs black, larger and more finely reticulated.

Oregon. (Walsingham.)

Posterior femora obsoletely punctulate, tibiæ with an accessory row of punctures reaching the apex.

G. brevicollis. Lec. Ent. Rep., p. 34.—Broadly ovate, sub-convex, black, above bronzed, legs rufescent; thorax rather short, sides broadly margined; elytra with a lateral yellow spot beyond the middle, closely and rather roughly reticulate, dorsal punctures evidently irregular, but not confused; anterior tibiæ rather long, spinulose; posterior coxæ punctulate, tibiæ with a sub-dorsal row of deep punctures. ♂ anterior tarsi with the claw obtusely dilated. L. ·45 inch.

California. (Leconte, Horn.)

Laciniæ of the metasternum sub-linear, tibial punctures confluent, forming an impressed line.

G. intersectus. (Lec. MSS.) sp. nov.—Elongate, sub-parallel, black, depressed, above shining, slightly bronzed; thorax with the sides suddenly rounded before the apex, posterior angles obtuse; elytra finely reticulate; su-

ture clearer and brighter, dorsal punctures well marked; posterior coxæ obsoletely punctulate, tibiæ as in *A. suturalis*. ♂ anterior tarsi with the claw dentate. L. ·35 inch.

California, Wyoming, Utah, Indian Territory, Oregon.

Differs from *G. suturalis* by its parallel sub-depressed form and by the male tarsi.

G. seriatus, Say, Tr. Am. Phil. ii., 97; *striatus*, Aubé, Spec., p. 305.—Ovate, sub-convex, black, legs rufescent, above bronzed; thorax with the sides rounded in front, posterior angles rectangular, not strongly margined; elytra with the lateral pale spot obsolete, shining, very finely and closely reticulate, dorsal punctures evident; posterior coxæ obsoletely punctulate, tibiæ with an accessory row of deep punctures. ♂ anterior claws obtusely dentate. L. .40 inch.

Pennsylvania, Canada. (Leconte, Horn.)

Posterior tibial spurs much shorter than the first tarsal joint, anterior tibiæ unarmed.

G. parallelus. Lec. Lake Sup, p. 213.—Very close to *G. seriatus*, but more elongate, parallel, sub-depressed, legs black. ♂ anterior tarsal claw with an obtuse tooth. L. ·42 inch.

Lake Superior. (Leconte.)

G. infuscatus, Aubé, Spec. vi., 330, 33.—Ovate, brassy-black, mouth, legs (femora infuscate), sides of thorax, margins of elytra and ventral segments yellowish-brown; thorax with the sides nearly straight, finely margined, anterior angles broad, almost rounded; surface coarsely rugulose and reticulate; elytra very finely reticulate, forming extremely small but perfectly equal areolæ, dorsal series confused; prosternum acutely carinate, posterior femora sparsely punctate, tibiæ alutaceous, tarsi with the last joint larger than fourth. ♂ tarsal claws elongate, dentate at the base. L. ·30 inch.

Lake Superior. (Leconte.)

The different sculpture of the thorax and elytra is characteristic of this species.

G. scapularis, Mannh. Bull. Mosc. (1852), 2. 303; *anthracinus*, Mannh. l. c. p. 304.—Ovate, sub-convex, black, slightly bronzed above, antennæ, legs and humeral region of the elytra pitchy-red; thorax short, sides slightly rounded, finely margined anterior, angles rufescent; elytra rather coarsely reticulated, with unequal but easily visible areolæ, dorsal series obsolete; posterior femora strigose, apical angle produced, spurs short, tibiæ smooth except four basal punctures, last joint of larsi longer than fourth. ♂ anterior tarsal claws elongate, sinuate, tarsi narrow. L. ·30 inch.

Sitkha, Canada. (Leconte, Horn.)

C.—Anterior male claws simple.

G. punctatus, Mels. Proc. Phil. ii., 27.—Ovate, convex, shining, black, antennæ, legs and upper surface rufo-piceous; disc of thorax and elytra bronzed; thorax with the sides nearly straight, not very finely margined (the basal punctures extend along the side); elytra punctulate, (with a high power the interstices are alutaceous) the dorsal series irregular, with numerous accessory punctures; prosternal process broad, convex, posterior coxæ and tibiæ strigulose, obsoletely punctulate, external tibial spur broad and large, femora with the apical angles rather produced. L. ·22 inch.

Pennsylvania, Georgia. Intermediate tarsi with first joint elongate.

Recognizable by the punctate surface and large posterior tibial spurs. Leconte refers this to *A. æruginosus* Aubé, but as I think erroneously. The female has the posterior femora broadly emarginate beneath.

G. stagninus, Say, Tr. Am. Phil. ii., 100; *striola*, Aubé, Spec., p. 308.—Broadly ovate, hardly convex, shining black, slightly bronzed, legs paler; thorax with the sides but little rounded, strongly margined; elytra extremely finely reticulate (appearing punctulate with a lower power), with a yellow submarginal vitta in the apical half; prosternal process slightly convex, anterior tibiæ very short, broad, spinulose. L. ·40 inch.

Pennsylvania. (Leconte.)

Very close to *G. semivittatus* but larger, broader, more depressed and the male with simple claws.

G. obtusatus, Say, Tr. Am. Phil. ii., 99; *nitidus* || Say, l. c. 98.—Uniformly ovate, rather convex, very shining, black, thorax with the sides rounded (especially in the ♂); elytra sculptured with rather large areolæ, the dorsal series well marked, posteriorly confused, with a yellow sub-lateral vitta and sub-apical spot; laciniæ of the metasternum sub-linear, posterior tibiæ with no accessory punctures. ♂ anterior tarsal claws simple. L. ·30—·32 inch.

Canada, Lake Superior. (Leconte, Horn.)

A. nitidus (Say *nec.* Fabr.) appears to me from description to be merely a specimen of *G. obtusatus* in which the lateral spots are obscured; this species very closely resembles *G. semivittatus*, Lec., but differs in its smaller size and finely margined thorax, as well as in the large areolæ of the elytra; but females and varieties of that species occur with precisely similar areolæ.

G. punctulatus. Aubé, Spec., p. 332.—Regularly ovate, shining, black, antennæ, legs and elytra ferruginous, the latter with the disc darker; thorax brassy, sides rufescent, nearly straight, finely margined, surface irregularly reticulate; elytra hardly visibly alutaceous, finely punctulate, dorsal series rather obsolete, but not irregular; prosternal process convex, posterior coxæ and tibiæ smooth, spurs short, last joint of tarsi larger than fourth. ♂ anterior claws simple, tarsi very slightly dilated. L. ·25 inch.

Lake Superior. (Leconte.)

G. inscriptus. (Lec. MSS.) sp. n.—Ovate, black, antennæ and legs red, elytra yellowish, slightly bronzed; thorax bronzed, sides nearly straight, rather strongly margined, closely and obsoletely reticulated; elytra with the dorsal series well marked, with accessory punctures on the disc, surface very finely and obsoletely strigulose; prosternal process convex, posterior legs as in *G. punctulatus*. ♂ anterior claws simple, tarsi very little dilated. ♀ surface opaque, visibly reticulate. L. ·25—·28 inch.

Labrador. (Leconte.)

G. strigulosus. sp. n.—Narrowly ovate, black, antennæ and legs rufous (posterior femora infuscate); thorax bronzed, rather largely reticulate, sides nearly straight, anterior angles rufous; elytra yellowish-brown, disc darker, entirely covered with a fine reticulation forming large unequal areolæ, dorsal series well marked, with numerous accessory punctures irregularly placed; prosternal process sub-carinate, posterior femora strigose, tibiæ with a short basal row of punctures. ♂ anterior tarsal claws simple, tarsi moderately dilated. L. ·26 inch.

California. (Leconte) Lake Tahoe.

G. fimbriatus. Lec. Lake Sup., p. 214; *reticulatus* || Aubé, Spec., p. 355.—Regularly ovate, opaque, black, antennæ and legs rufous, elytra brown, margins ferruginous; thorax with the sides slightly rounded, sub-rufous, rather finely margined, surface unequally and coarsely reticulated; elytra sculptured similarly to the thorax, dorsal series obsolete, slightly pubescent; prosternal process rather broad, convex, posterior femora strigose, tibiæ finely punctate, last joint of tarsus larger than the fourth. ♂ tarsal claws simple. ♀ reticulation closer. L. ·32 inch.

Pennsylvania, Lake Superior. (Leconte.)

G. tristis. Aubé, Spec., p. 356; var. *dubius*, Mannh. B. M. (1843), ii., p. 221.—Elongate oval, rather narrowed behind, tolerably shining, pitchy black; thorax with the anterior angles broadly fulvous, sides slightly rounded, sinuate before the anterior angles, pretty strongly margined; elytra coarsely and rather evidently reticulate, areolæ small, dorsal series tolerably marked, with numerous punctures; prosternal process convex and not acutely carinate; posterior femora strigose, tibiæ coarsely punctate. ♂ anterior tarsal claws simple, tarsi narrow. L. ·40 inch.

Sitkha. (Leconte, Horn.)

Var.—Thorax entirely black.—Lake Tahoe.

G. arcticus, Payk. Fn. Suec. i., 201; *subfasciatus*, Lec. List. p, 17; *reticulatus*, Kirby, Faun. B. A. iv., 71.—Ovate, black, legs ferruginous, elytra griseous, with the margins and epipleura yellowish, thorax fulvous, anterior and posterior margins black, head rufous in front; thorax with the sides slightly rounded, anterior angles porrected; elytra with visible irregular areolæ (producing a slightly scabrous effect); prosternal process depressed. ♂ anterior claws elongate, sinuate, tarsi broad. L. ·30 inch.

Labrador. (Leconte.) Lapland, Scotland.

In coloring, this resembles *Colymbetes notatus.*

G. gagates, Aubé, Spec. vi., p. 306.—Ovate, convex, very shining, piceo-rufous, above bronzed; head in front and anterior angles of thorax red, sides of thorax slightly rounded, rather strongly margined, posterior angles not acute; elytra finely and closely reticulated throughout, appearing punctulate towards the apex, dorsal series well marked; prosternal process carinate, metasternum deeply emarginate, posterior femora aciculate, tibiæ with an accessory row of punctures, last joint of tarsi not longer than the fourth. ♂ anterior tarsal claws elongate. L. ·38 inch.

Pennsylvania, Lake Superior. (Leconte.)

G. hypomelas, Mannh. Bull. Mosc. (1843), ii., 221; *irregularis,* Mannh. l. c. (1853), p. 159.—Ovate, sub-parallel, sub-depressed, shining, black, above greenish bronzed, antennæ, legs and epipleura rufescent; thorax with the sides straight, finely margined; elytra very finely and lightly reticulate, the areolæ small (the intersections are deeper and give the appearance of a fine punctuation); the dorsal punctures evident, confused behind; prosternal process broad, rather convex, the mesosternal emargination rounded and short; posterior femora and tibiæ smooth, spurs short, last joint of tarsi longer than the fourth. ♂ tarsal claws simple. L. ·28 inch.

Sitkha, Vancouver's Island. (Leconte, Horn.)

This is determined from a typical specimen sent by Mäklin; but Mannerheim's description is not very applicable. His *A. irregularis* however, suits exactly.

G. lugens, Lec. Ann. Lyc. v., 203.—Broadly ovate, rather depressed, black, above faintly bronzed, elytra with a very faint yellow lateral spot beyond the middle; thorax with the sides straight, rather broadly but not strongly margined; elytra closely and very finely reticulate, the areolæ extremely small, the dorsal punctures well marked, rather irregular, but not confused at the apex; posterior coxæ faintly punctulate, tibiæ with a sub-dorsal row of deep punctures. ♂ tarsi with the claws simple. L. ·38 inch.

San Diego. (Leconte, Horn.)

G. suturalis, sp. nov.—Regularly ovate, black, above slightly bronzed, sub-opaque; thorax with the sides hardly rounded, posterior angles rectangular; elytra closely reticulate, the sutural region nearly smooth, dorsal punctures evident, irregular, the yellow spot beyond the middle is but little evident; body beneath strigulose, posterior femora obsoletely punctulate, tibiæ with a regular sub-dorsal row of deep punctures. ♂ anterior claws unarmed. L. ·35 inch.

Nevada. (Leconte.)

ANISOMERA. Brullé, H. N. V., p. 205. (Type *bistriata.*)

Thorax coarctate behind (as in *Carabidæ*), prosternum convex, metasternum hardly emarginate, but with a shallow groove in front, laciniæ broad, sub-triangular, episterna reaching the coxal plates; legs long, femora narrow, elongate, tarsi elongate, last joint of posterior

tarsi much longer than the fourth, claws equal, apical angle of femora ciliated. ♂ four anterior tarsi feebly dilated and thickly ciliate beneath.

A. cordata. Lec. Proc. Phil. (1853), p. 226.—Oblong, piceous, legs and front of head rufous, above brassy, thorax cordate, transverse, sides margined, posterior angles rectangular; elytra finely reticulate, dorsal series evident, irregular. L. ·41 inch.

Kansas. (Lecoute.)

A. recta. Lec.—Similar to *A. cordata*, but more opaque, less brassy, head and legs black, thorax with the sides gradually narrowed to the base, not cordate. L. ·42 inch.

Vancouver Island.

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Description of TORTRIX LINTNERIANA.

BY AUG. R. GROTE.

This is a species allied to Tortrix gurgitana, *Robinson*, but differing at once by the shape of the costal incision. The two species belong to Hübner's genus Rhacodia. T. Lintneriana differs at once from T. gurgitana by the shoulder of the primaries being more produced and the incision more prolonged. It is a larger species and of a paler, more yellow shade. The fore wings are similar in general color, but are paler, not rusty; the usual reticulations are distinct, but the wing is entirely without the customary transverse darker shade bands. The usual extra basal and median lines, which latter ordinarily limits inwardly the median band, are here distinct, similar in shape to those in T. gurgitana, but of an obscure golden hue. The hind wings are pale lemon-yellow with the usual large blackish shade inferiorly over the internal margin and here distinct and extended. Beneath of a pale lemon-yellow tint, a little darker towards the external margins where are interrupted ochrey lines. The type specimen expands 28 m. m., and I am indebted to Mr. J. A. Lintner for its communication. It is from New York.

A Supplement to the "DESCRIPTIONS OF AMERICAN LEPIDOPTERA."

BY AUG. R. GROTE AND COLEMAN T. ROBINSON.

[Under the above title five papers have been printed in these Transactions. The untimely death of Mr. C. T. Robinson has prevented the completion of a series, which was intended to include one hundred figures of American Moths. Eighty-six figures had been published at the time of Mr. Robinson's decease, illustrating five descriptional papers dating as follows:

No. 1. Vol. i., pp. 1—29 with 2 plates and 25 figures, and dated June, 1867.

No. 2. Vol. i., pp. 171—192 with 1 plate, figs. 26 to 35, and dated August, 1867.

No. 3. Vol. i., pp. 323—360 with 2 plates, figs. 36 to 59, and dated January, 1868.

No. 4. Vol. ii., pp. 179—206 with 2 plates, figs. 60 to 76, and dated September, 1868.

No. 5. Vol. iii., pp. 176—182 with 1 plate, figs. 77 to 86, and dated October, 1870.

During the time in which these papers were being written we visited the British Museum together and examined many of Mr. Francis Walker's types of the new species of Moths described in the British Museum Lists. A paper devoted to the changes in nomenclature proposed in consequence, has already appeared in these Transactions, Vol. ii., pp. 67—88.

The descriptional part of a sixth paper of our series, the one intended to bring the number of figures to one hundred, was partly finished at Mr. Robinson's death, but many considerations will prevent its being printed. This sixth paper, however, embodied a revision of the species previously described which is given here.

A. R. G.]

The species we have hitherto mentioned and illustrated in this series of papers are here briefly enumerated in a systematic order and, where it is found necessary, changes are made in the names originally proposed.

Family PAPILIONIDAE.

Sub-family LYCAENINAE.

Tribe *Theclini.*

1. **Thecla inornata,** [*G. & R.* No. 3, p. 323; No. 4, p. 179. *Thecla falacer* ‡ Bdv. and Lec. (not Godt.) plate. *Thecla falacer* ‡ Scudd., Harris], and **Thecla calanus,** *Westw.* [No. 3, p. 324; Nw. 4, p. 179. *Rusticus arm. calanus,* Hübner. *Thecla falacer,* Godt. *Thecla falacer,* Bdv. and Lec. text in part. *Thecla Edwardsii,* Saunders MSS. teste. G. & R. No. 2, p. 172. *Thecla falacer,* Scudd., Harris.] are separated.

2. **Thecla lorata,** *G. & R.* No. 2, p. 171.

This species differs from its allies by the common extra basal line of powdery dark blue scales on the under surface of the wings. Virginia.

3. **Thecla henrici,** *G. & R.* No. 2, p. 174.

Eastern and Middle States.

Family HESPERIIDAE.

4. **Hesperia accius.**

Papilio accius, Ab. and Smith.
Hesperia punctella, G. & R. No. 1, p. 1.

Our material came from Georgia, and there is no doubt that it belongs to the species represented by Ab. and Sm. Southern States.

5. **Hesperia fusca,** *G. & R.* No. 1, p. 2.

Georgia, Florida.

6. **Hesperia alternata,** *G. & R.* No. 1, p. 3.

Georgia. Mr. Townend Glover has figured our type specimen on his unpublished plates of Lepidoptera.

Family SPHINGIDAE.

Tribe *Macrogossini.*

7. **Sesia thetis,** *G. & R.* No. 3, p. 325, fig. 36.

Macroglossa thetis, Boisd.

California.

8. **Sesia axillaris,** *G. & R.* No. 4, p. 180.

Texas.

9. **Euproserpinus phaeton,** *G. & R.* No. 4, p. 181.

Macroglossa erato, Boisd. (1868—1869.)
Eupros. phaeton, G. & R. Cat. Sphing. (1865.)
Macroglossum phaeton, G. & R. Trans. Ent. Soc. p. 174 (1870).

California.

Family AEGERIIDAE.

10. **Aegeria pictipes,** *G. & R.* No. 4, p. 182, fig. 94.
Pennsylvania.

11. **Zenodoxus maculipes,** *G. & R.* No. 4, p. 184.
Texas.

Family ZYGAENIDAE.

Sub-family CASTNIINAE.

Tribe *Castniini.*

12. **Alypia 8-maculata,** *Hübner,* G. & R. No. 3, p. 326.
Eastern, Middle and Western States.

13. **Alypia langtonii,** *Couper,* G. & R. No. 3, p. 326.
Al. octomaculata ‡ Walk.
Canada.

14. **Alypia dipsaci,** *G. & R.* No. 3, p. 326, fig. 37.
California.

The species of Alypia from the Western District, as elsewhere remarked by us, have the spots on the secondaries of the same color with those on the fore wings; whereas A. 8-maculata from the Atlantic District has the markings of the hind wings white.

15. **Alypia sacrementi,** *G. & R.* No. 3, p. 327; fig. 38.
California.

16. **Alypia lorquinii,** *G. & R.* No. 3, p. 328, fig. 39.
California. This species is allied to A. Maccullochi, *Kirby*, and A. Ridingsii, *Grote.*

17. **Alypia mariposa,** *G. & R.* No. 3, p. 329, fig. 40.
California.

Tribe *Eudriini.*

18. **Euscirrhopterus gloveri,** *G. & R.* No. 4, p. 185.
Texas.

Sub-family ZYAENINAE.

Tribe *Ctenuchini.*

19. **Ctenucha ochroscapus,** *G. & R.* No. 3, p. 330.
Cten. corvina, Boisd., p. 71.
California.

20. **Ctenucha multifaria,** *Walk.*
Glaucopis rubroscapus, Mén.
Ctenucha rubrosc. G. & R. No. 3, p. 331.
California.

Tribe *Pericopiini.*

21. **Gnophaela aequinoctialis,** *Walk.* G. & R. No. 3, p. 331.
Venezuela.

22. **Gnophaela vermiculata,** *G. & R.* No. 3, p. 332.
Callalucia vermiculata, Grote.
Colorado Territory.

23. **Gnophaela hopfferi.**
Gnophaela hopfferi, G. & R. No. 3, p. 332.
California.

Tribe *Cydosiini.*

24. **Cydosia aurivitta,** *G. & R.* No. 4, p. 186, fig. 68.

Family BOMBYCIDAE.

Sub-family LITHOSIINAE.

Tribe *Lithosiini.*

25. **Cisthene unifascia,** *G. & R.* No. 4, p. 187, fig. 63.
Southern States. In the text the figure is erroneously cited. This is perhaps a form of *C. subjecta.* The more obscurely colored species from the Western District, erroneously described under *Lithosia* by Boisduval, seem to vary in an analogous manner.

26. **Lithosia cephalica,** *G. & R.* No. 5, p. 176.
Texas.

Sub-family ARCTIINAE.

27. **Epicallia virginalis,** *Boisd.* sp., G. & R. No. 3, p. 333, fig. 42.
Var. *Agarista guttata,* Boisd.
California.

28. **Nemeophila caespitis,** *G. & R.* No. 3, p. 337, fig. 43.
California.

29. **Nemeophila cichorii,** *G. & R.* No. 3, p. 338, fig. 44.
California.

30. **Arctia achaia,** *G. & R.* No. 3, p. 334, figs. 45, 46.
California. The artist has erroneously figured the antennae of the ♀, fig. 46, so as to make them as pectinate as in the ♂, fig. 45.

31. **Arctia dahurica,** *Boisd.* sp., G. & R. No. 3, p. 336, fig. 41.
California.

32. **Vanessodes clarus,** *G. & R.* No. 5, p. 176.
Texas.

Sub-family COCHLIDIINAE.

Tribe *Adonetini.*

33. **Monoleuca semifascia,** *Walk.* sp., G. & R. No. 4, p. 188, fig. 62.

Texas to Virginia. In the text the fig. is erroneously cited.

34. **Adoneta pygmaea,** *G. & R.* No. 4, p. 189.

Tribe *Cochlidiini.*

35. **Henretes picticornis,** *G. & R.* No. 4, p. 190.
St. Thomas, West Indies.

36. **Limacodes rectilinea,** *G. & R.* No. 4, p. 188, fig. 61.
South Carolina. In the text the figure is incorrectly cited.

Sub-family PSYCHIINAE.

Tribe *Psychiini.*

37. **Psyche confederata,** *G. & R.* No. 4, p. 191, figs. 66, 67.
Texas. The observation in the text, referring Professor Glover's Florida species here, is inaccurate. The Florida insect is Platoeceticus Gloverii, *Pack.*

Sub-family PTILODONTINAE.

Tribe *Pygaerini.*

38. **Ichthyura ornata,** *G. & R.* No 4, p. 191.
California.

Tribe *Heterocampini.*

39. **Dasylophia interna,** *Pack.* G. & R. No. 2, p. 176, fig. 31.
Virginia to New Hampshire.

40. **Coelodasys leptinoides,** *G. & R.* No. 2, p. 177, fig. 33.
Pennsylvania to Rhode Island.

41. **Heterocampa obliqua,** *Pack.* G. & R. No. 2, p. 178, figs. 26, 27.
Middle States. Is this the same as H. astarte?

42. **Heterocampa brunnea.** *G. & R.* No. 2, p. 180, fig. 28.
Georgia to Pennsylvania. The ♀ is represented on an unpublished plate of Abbot's; ♂ unknown. Is this a distinct species?

43. **Heterocampa pulverea,** *G. & R.* No. 2, p. 185, fig. 32.
Middle States.

44. **Heterocampa marthesia,** *G. & R.* fig. 29.
Phalaena marthesia, Cramer, 264 B.
Lochmaeus tessella, Pack.
Het. tessella, G. & R. No. 2, p. 182.
Cerura turbida, Walk.
Eastern and Middle States.

45. **Heterocampa elongata.** *G. & R.* No. 2, p. 184, fig. 30.
Middle States.

Sub-family CERATOCAMPINAE.

Tribe *Hemileucini.*

46. **Hemileuca grotei.** *Hopffer*, G. & R. No. 4, p. 192, fig. 60.
Texas.

47. **Hyperchiria zelleri.** *G. & R.* No. 4, p. 193, fig. 65,
Texas.

Tribe *Dryocampini.*

48. **Syssisphinx simulatilis.** *G. & R.* No. 1, figs. 1 ♂ and 7 ♀.
♂ *Psephopaectes simul.*, G. & R. No. 1, p. 5.
♀ *Adelocephala grandis*, *G.* & R. No. 1, p. 8.
Mexico. After having examined specimens of both sexes of the Brazilian S. molina in Paris, we make the above correction.

49. **Adelocephala 4-lineata.** *G. & R.* No. 1, p. 11, fig. 2.
Mexico. Here also reference is made to the U. S. Sphingicampa bicolor, and the Mexican A. albolineata, *G. & R.* For remarks respecting the two Mexican species of Adelocephala above mentioned, see Trans. Am. Ent. Soc., Vol. 2, p. 77.

Family NOCTUIDAE.

50. **Microcoelia diphteroides,** *Guenée*, G. & R. No. 4, p. 195, figs. 69, 70.
Eastern and Middle States.

51. **Acronycta dissecta.** *G. & R.* No. 5, p. 178, fig. 81.
Eastern States.

52. **Acronycta verrillii.** *G. & R.* No. 5. p. 178, fig. 82.
Eastern States.

53. **Acronycta luteicoma.** *G. & R.* No. 5, p. 179, fig. 83.
Middle States. Allusion is here made to A. funeralis and A. afflicta.

54. **Acronycta morula.** *G. & R.* No. 4, p. 196, fig. 75.
Canada, Eastern and Middle States.

55. **Leucania rubripennis,** G. & *R.* No. 5, p. 179, fig. 77.
Texas.

56. **Arzama obliquata,** *G. & R.* No. 3, p. 339, fig. 47.
Middle States.

57. **Gortyna purpurifascia.** *G. & R.* No. 3, p. 341, fig. 51.
Eastern States.

58. **Gortyna speciosissima,** *G. & R.* No. 3, p. 342, fig. 52.
Eastern States.

59. **Gortyna inquaesita.** *G. & R.* No. 3, p. 344.
Eastern and Middle States.

60. **Hydroecia sera,** *G. & R.* No. 3, p. 345, fig. 55.
Canada, Eastern and Middle States.

61. **Xanthia ralla,** *G. & R.* No. 3, p. 346, fig. 49.
Middle States.

62. **Xanthia enroa,** *G. & R.* No. 3, fig. 50.
Xanthia puta, ‖ p. 347, l. c.
Eastern and Middle States. The name we originally proposed is preoccupied.

63. **Choephora fungorum,** *G. & R.* No. 4, p. 200, fig. 74.
Southern and Middle States.

64. **Agrotis collaris,** *G. & R.* No. 3, p. 348, fig. 53.
New York.

65. **Agrotis geniculata,** *G. & R.* No. 3, p. 349, fig. 54.
Pennsylvania.

66. **Agrotis muraenula,** *G. & R.* No. 3, p. 352, fig. 48.
Eastern and Middle States. A. scandens, *Riley*, contrary to supposition, we regard as different, not synonymous.

67. **Agrotis repentis,** *G. & R.* No. 3, p. 350, fig. 58.
New York.

68. **Agrotis violaris,** *G. & R.* No. 3, p. 353, fig. 59.
Pennsylvania.

69. **Hadena distincta,** *Guenée,* G. & R. No. 4, p. 197, fig. 72.
Middle States.

70. **Hadena subjuncta,** *G. & R.* No. 4, p. 198, fig. 71.
Western and Middle States.

71. **Xylina bethunei,** *G. & R.* No. 3, p. 354, fig. 56.
Canada to New York.

72. **Xylina capax,** *G. & R.* No. 3, p. 355, fig. 57.
Pennsylvania.

73. **Cucullia convexipennis,** *G. & R.* No. 4, p. 201, fig. 76.
Eastern and Middle States.

74. **Plusia mappa,** *G. & R.* No. 4, p. 204.
Canada.

75. **Litoprosopus futilis,** *Grote,* No. 4, fig. 73.
Dyops futilis, G. & R. p. 202, l. c.
Litop. futilis, Grote, Trans. Am. Ent. Soc. Vol. ii., p. 309.
Florida.

76. **Lygranthoecia marginata,** *G. & R.*
Pyralis marginatus, Haworth.
Anthoecia rivulosa, Guenée.
Alabama to Canada. This new generic name is proposed for this and the following species which differ structurally from either Anthoecia, *Boisd,* or any of the divisions of Heliothis, *Led.*

77. **Lygranthoecia thoreani,** *G. & R.* No. 5, fig. 80.
Anthoecia thoreani, G. & R. p. 181, l. c.
Alabama to New York.

78. **Heliothis villosus,** *G. & R.*
Melicleptria villosa, Grote.
Anthoecia vill., G. & R. No. 5, p. 181.
Colorado Territory.

79. **Heliothis hirtellus,** *G. & R.*
Anthoecia hirtella, G. & R. Proc. E. S. Phil. Vol. vi., pl. 3, fig. 3.
Eastern States. Guenée's figure of H. spinosae totally differs from our species; his description corresponds sufficiently as to lead us to suspect our species intended.

80. **Heliothis citrinellus,** *G. & R.* No. 5, p. 180, fig. 79.
Texas.

81. **Heliothis phlogophagus,** *G. & R.* No. 5, p. 180.
California, Western States and Territories. Is this distinct from the European H. dipsacea?

82. **Heliothis umbrosus,** *Grote.*
Throughout the Atlantic District. Common and destructive to many fruits. Is this distinct from the European H. armigera, which, conversely, seems to occur rarely in its habitat?

83. **Heliocheilus paradoxus,** *Grote.*
Colorado Territory. Specimens from Texas and Alabama are smaller and paler, but do not seem to be distinct. The genus has since been discovered in the East Indies, we were told in Vienna.

84. **Charielea exprimens,** *G. & R.*
Heliothis exprimens, Walker.
Middle and Eastern States. Is this distinct from the European Char. umbra (*Hel. marginata,* Auct.)?

85. **Tarache cretata,** *G. & R.* No. 5, p. 181, fig. 78.
Texas.

86. **Erastria synochitis,** *G. & R.* No. 3, p. 357.
Eastern and Middle States.

87. **Erastria musta,** *G. & R.* No. 3, p. 358.
Middle States.

88. **Drasteria agricola,** *G. & R.* No. 2, p. 189, fig. 34.
Pennsylvania to Massachusetts.

89. **Drasteria mundula,** *G. & R.* No. 2, p. 191, fig. 35.
Pennsylvania. Both of these are probably varietal forms of D. erichtea.

Family ARCHIEARIDAE.

90. **Archiearis infans,** *G. & R.* No. 2, p. 189.
Brephos infans, Moeschler.
Eastern States northward to Labrador.

91. **Archiearis brephoides,** *G. & R.* No. 2, p. 188.
Anarta brephoides, Walker.
Arch. resoluta, Zeller.
Hudson's Bay Territory.

Family GEOMETRIDAE.

92. **Selenia kentaria,** *G. & R.* No. 3, p. 359, figs. 5, 6.
Pericallia kent., No. 1, p. 12.
New York. Represents the European S. illunaria in our fauna, but is to be readily distinguished from it.

93. **Fidonia fimetaria,** *G. & R.* No. 5, p. 182, figs. 84 to 86.
Texas. Appears to represent the European F. fasciolaria in our fauna, but is readily distinguished.

Family PYRALIDAE.

Pyralididae (*Lederer*).

94. **Fabatana oviplagalis,** *Walker,* G. & R. No. 1, fig. 9.
Asopia anthoecioides, G. & R. p. 15, l. c.
New York to Pennsylvania.

95. **Asopia unimacula,** *G. & R.* No. 1, p. 14, fig. 8.
Pennsylvania.

96. **Botys laticlavia,** *G. & R.* No. 1, p. 17, fig. 12.
Alabama to New York. Apparently this species is determined as the Cuban Rhodaria tyralis, *Guenée,* in the B. M. Coll. Guenée's species cannot be the same.

97. **Botys cinerosa,** *G. & R.* No. 1, p. 18, fig. 13.

Pennsylvania.

98. **Botys diffissa,** *G. & R.* No. 1, p. 19, fig. 16.

Cuba to Louisiana. This comes near to Hemimatia phoenicalis, *Hüb.*, but differs from the illustration, and more sensibly from the description given by *Guenée*, p. 173. Perhaps it is *Guenée's* R. tyralis.

99. **Botys sumptuosalis,** *G. & R.* No. 1, fig. 14.

Pyrausta sumptuosalis, Walker, p. 1281, pt. 34.
Botys haruspica, G. & R. p. 19, l. c.

Pennsylvania to Massachusetts.

100. **Botys vinulenta,** *G. & R.* No. 1, fig. 11.

Massachusetts to Pennsylvania, and westward to the Territories. This is *Rhodaria signatalis*, Walker, and *Botys signatalis*, G. & R., but the specific name is preoccupied.

101. **Botys generosa,** *G. & R.* No. 1, p. 20, fig. 10.

Pennsylvania.

102. **Botys plectilis,** *G. & R.* No. 1, p. 27, fig. 17.

Pennsylvania to New York.

103. **Botys adipaloides,** *G. & R.* No. 1, p. 26, fig. 19.

Texas to Massachusetts. Allied to B. ecclesialis, and seems to be the species described as Samea elialis by Walker.

104. **Botys citrina,** *G. & R.* No. 1, fig. 20.

Spilodes helvialis, Walker, (!). (in part)
Botys citrina, G. & R. p. 23, l. c.
Botys thycesalis, Walker, (!).
Botys apertalis, Walker, (!).

Massachusetts to Pennsylvania. None of Mr. Walker's names for this species can be used, for the reason that the specimens under these names in B. M. do not correspond with the descriptions, or belong to more than one species.

105. **Botys marculenta,** *G. & R.* No. 1, p. 23, fig. 21.

New York to Pennsylvania.

106. **Botys coloradensis,** *G. & R.* No. p. 25, fig. 18.

Colorado Territory.

107. **Botys argyralis,** *Hübner,* sp., G. & R. No. 1, fig. 23.
Botys ventralis, G. & R. p. 21, l. c.

Alabama to New York. Varies in color and obsolescence of the white spots on primaries; recognizable from the darker colored ventral shade.

108. **Botys posticata,** *G. & R.* No. 1, p. 22, fig. 25.
Pennsylvania.

109. **Botys insularis,** *G. & R.* No. 1, p. 24, fig. 24.
Cuba.

110. **Blepharomastix ranalis,** *Led.,* G. & R. No. 1, fig. 15.
Botys gracilis, G. & R. p. 25, l. c.
Middle and Eastern States.

111. **Lipocosma albolineata,** *G. & R.* No. 1, p. 28, fig. 23.
Middle States.

The only other species belonging to this family described by us is Pantographa limata, Ann. N. Y. Lyc. vol. viii, April, 1867, plate 16, fig. 16 ♂, 17 ♀. This seems to represent the Brazilian P. scriptualis, *Led.*, in our fauna and is not uncommon from Virginia to Massachusetts.

ERRATA.

Page 71, line 8, before "D'une" insert "Essai."
Page 174, line 19, before "large" insert "stigma."
Pages 294 and 295 for "coccinifascia" read "coccineifascia."

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The names of new genera and of new species are followed by the name of the Author.

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